

CCTV Products

Databook 2010



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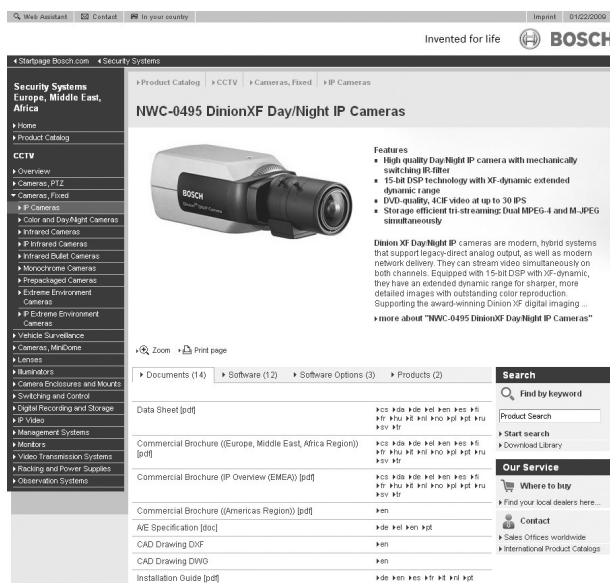
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- Tell a friend function
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AutoDome Easy II



Features

- ▶ **Ultra compact for discrete surveillance and improved aesthetics in indoor and outdoor applications**
- ▶ **High-speed 360-degree continuous pan**
- ▶ **High resolution/sensitivity 530 TVL color camera**
- ▶ **120x zoom (10x optical, 12x digital)**
- ▶ **Multiple tour and auto-pan modes**
- ▶ **Multi-protocol capable**
- ▶ **Durable vandal-resistant housing and bubble**

AutoDome Easy II is a rugged, extremely compact, and easy to install PTZ camera system which incorporates many features typically only found in traditional high-speed dome cameras. This discrete, high-speed dome camera has been specifically designed to deliver uncompromised functionality and performance at a very affordable price for indoor and outdoor applications.

AutoDome Easy II highlights

With a dome diameter of only 4 inches (10.2 cm), the AutoDome Easy II is about 70% smaller than traditional PTZ cameras and 20% smaller than other compact domes. These compact dimensions make the AutoDome Easy II ideal for discrete surveillance applications.

Despite its compact design, the AutoDome Easy II delivers state-of-the-art technology and features that are rare to most compact PTZ cameras. Its variable pan and tilt speeds and autopivot ensure optimal camera control and viewing at all zoom levels. The high-performance 120x (10x optical/12x digital) zoom autofocus camera incorporates the latest digital imaging technology with excellent sensitivity and resolution. With 99 user-defined presets as well as multiple tour and autopan modes, the AutoDome Easy II is not small on features.

A single AutoDome Easy II provides as much coverage as four fixed mini domes and is priced lower than a traditional PTZ dome camera. The AutoDome Easy II maximizes your security investment by integrating with the entire line of Bosch video products including variable speed Allegiant matrix switchers, DiBos and Divar digital recorders, as well as the full range of Bosch video over IP products.

And, the AutoDome Easy II is simple to install and use; available with surface, wall, recessed, and pipe mount options. These mounting options ensure that the AutoDome Easy II can be mounted nearly anywhere. Intuitive set-up menus make dome configuration quick and easy. Built-in IntuiKey support means that the AutoDome Easy II uses the same familiar keyboard and joystick commands as the rest of the Bosch AutoDome family.

Functions

The following are some of the features that make the AutoDome Easy II Series the perfect fit for a variety of indoor surveillance applications.

High-performance 120x PTZ color camera

The AutoDome Easy II PTZ cameras have a 1/4-inch color CCD. With 530 TVL (NTSC/PAL) resolution and sensitivity to below 1.0 lux, the AutoDome Easy II Series offers exceptional performance at a very affordable price.

The AutoDome Easy II supports up to 99 user-defined prepositions, as well as 1 preset tour, 2 recorded tours, and 2 auto-pan modes. The preset tour can be programmed with up to 99 prepositions and a configurable dwell time between positions. The recorded tours playback up to 15 minutes of any manual camera movements made during the recording, including the rate of pan, tilt and zoom speeds and other lens setting changes.

Pan and tilt preset repeatability are accurate to within ± 0.1 degrees to ensure that the correct scene is captured every time. AutoDome Easy II delivers variable pan/tilt speeds from a crawl speed of only 0.1 degrees per second up to an ultra-quick 120 degrees per second. The dome is capable of pan speeds of 360 degrees per second and tilt speeds of 100 degrees per second between prepositions. AutoDome Easy II provides a tilt range of 0 to 94 degrees, and a pan range of up to 360 degrees continuous rotation.

The patented AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera) ensure optimal control.

Cost effective coverage

It typically requires four or more fixed dome cameras to provide a full 360 degrees of surveillance coverage. Traditional PTZ dome cameras provide full coverage, but at a significantly higher cost. A single AutoDome Easy II provides as much coverage as four fixed domes, but is priced lower than a traditional PTZ dome camera. Not only is your initial investment smaller, but installation and maintenance costs are reduced as well.

Superior privacy masking

The AutoDome Easy II allows for a total of 12 individual privacy masks, with up to 12 displayed in the same scene. Unlike conventional privacy masks, these can each be programmed with three, four, or even five corners to cover more complex shapes. As the camera is zoomed each mask changes size smoothly and quickly ensuring that the covered object cannot be seen. You also have a choice of black, white, and blurred characteristics. The blurred option comes in handy when privacy is an issue, but determining the presence of motion is still required.

Rugged reliability

A heavy-duty, tamper-resistant aluminum housing and rugged polycarbonate bubble protect the camera from vandalism and theft, ensuring the AutoDome Easy II continues to deliver critical images even in the toughest environments.

As with all Bosch products, the AutoDome Easy II has been subjected to the industry's most comprehensive and demanding battery of endurance tests such as HALT (highly accelerated life testing) to make sure it will hold up through years of use. And of course, it comes with Bosch's industry-leading 3-year warranty.

Ease of installation and servicing

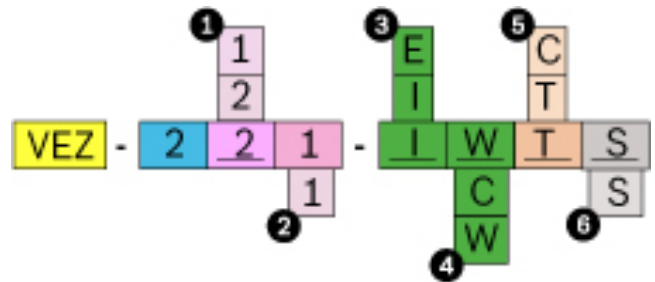
The AutoDome Easy II has been designed for quick and easy installation; a key feature from Bosch CCTV products. The dome comes fully assembled and ready for surface mount applications. Also available are wall, recessed, and pipe mounting kits which allow the AutoDome Easy II to be easily adapted for the individual site requirements. Available in white or charcoal.

An intuitive set-up menu structure and multiple language support make dome configuration quick and easy. Supported on-screen display menu languages include: English, French, German, Spanish, Portuguese, Polish, Italian, and Dutch.

Certifications and Approvals

Region	Certification
Europe	CE
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards
Environmental (Outdoor models)	IP65

Installation/Configuration Notes



Ordering Guide

1 Video Format

- 1 PAL
- 2 NTSC

2 Camera Type

- 1 Color (10x)

3 Housing

- I Indoor
- E Outdoor

4 Color

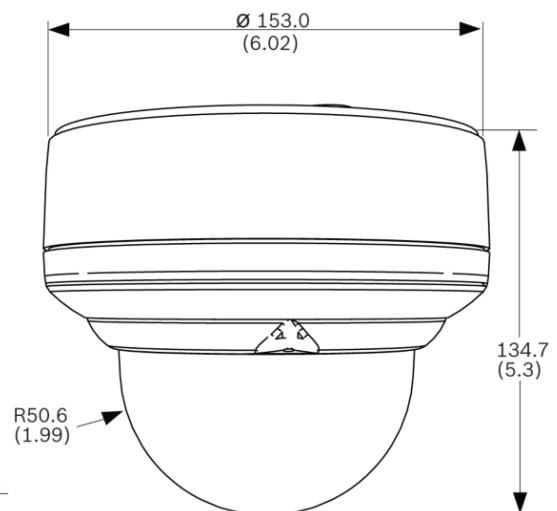
- C Charcoal
- W White

5 Bubble

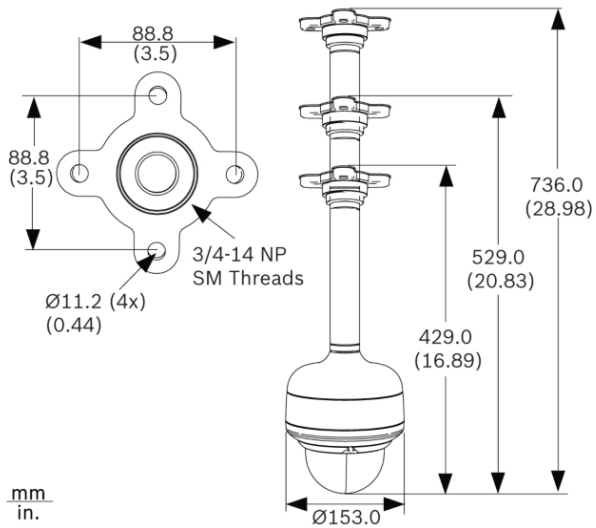
- C Clear
- T Tinted

6 Communications

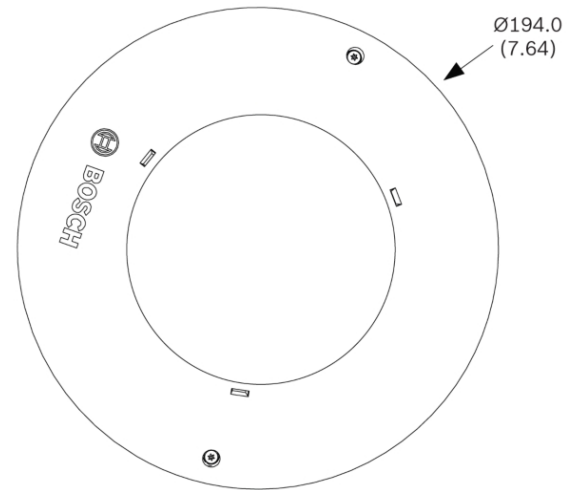
- S Standard Analog



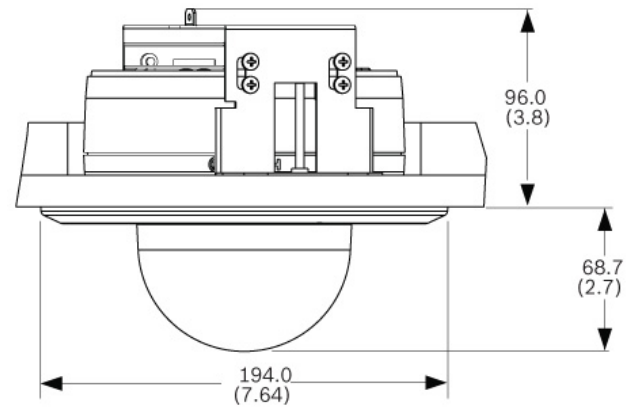
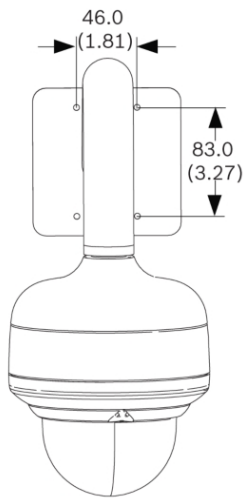
AutoDome Easy II Dimensions



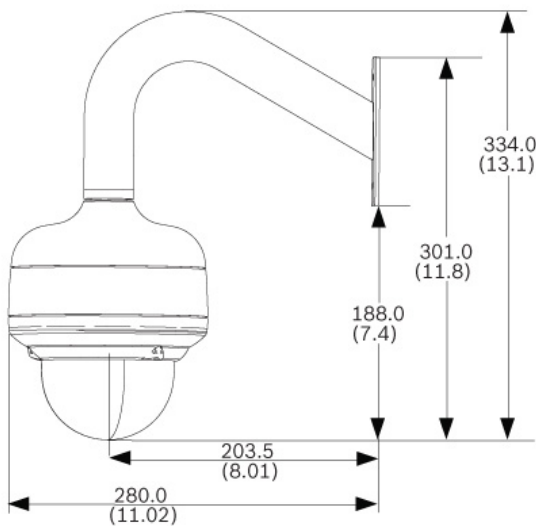
Pipe Mount Dimensions



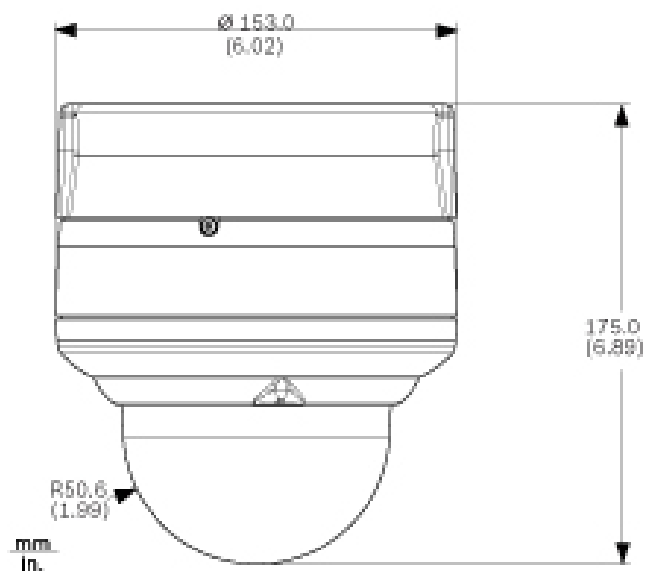
Recess Mount In-ceiling Dimensions



In-ceiling Dimensions



Wall Mount Dimensions



Surface Mount Dimensions

Technical Specifications

Camera 10x Color

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)	
Lens	10x Zoom (4.2–42.0 mm) (f/1.8)	
Focus	Automatic with manual override	
Iris	Automatic with manual override (F1.8 to F2.9)	
Field of View	Approx. 4.6° (TELE end) to 46° (Wide end)	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	AGC on/off (28dB max)	
Synchronization	Internal/external	
Aperture Correction	User adjustable	
Horizontal Resolution	530 TVL (NTSC, PAL) typical	
Digital	12x	
Optical Zoom	10x	
Optical Zoom FOV	4.6° to 46°	
Sensitivity (typical)	30 IRE	50 IRE
With Tinted Bubble*		
SensUP Off	0.83 lx	1.67 lx
SensUP On (1/4)	0.043 lx	0.110 lx
*With optional clear bubble, approximately 0.6 F-stop improvement.		
SNR	50 dB	
White Balance	Auto, indoor, outdoor, 1 push	

Mechanical/Electrical

Weight

• All Models	1.3 kg (2.86 lb)
Pan Range	0-360° continuous
Tilt Angle	0-94°
Variable Speed	0.1°/s-120°/s
Pre-position Speed	Pan: 360°/s Tilt: 100°/s
Preset Accuracy	± 0.1° typ.

Rated Voltage

• Camera, Indoor	12 VDC / 24 VAC ± 10%, 50/60 Hz
• Camera, Outdoor	24 VAC ± 10%, 50/60 Hz
• Heater, Outdoor Models	24 VAC ± 10%, 50/60 Hz

Power Draw: (typ.)

• Indoor Models	10 W
• Outdoor Models	35 W

Environmental

Operating Temp.	
• Indoor Models	–10°C to 50°C (14°F to 122°F)
• Outdoor Models	–30°C to 50°C (–22°F to 122°F)
Operation Humidity	0% to 90% relative, non-condensing
Storage Temp.	–40°C to 60°C (–40°F to 140°F)

Miscellaneous

Sectors/Titling	8 independent sectors with 16-character titles/sector
Camera Setup/Control	Biphase +/-, RS-485, Bilinx
Protocol Support	Bosch (OSRD, Bilinx), Pelco P, Pelco D
Pre-positions	99, each with 16-character titles
Guard Tours	Two (2) types of tours: • Recorded tours - two (2), total duration 15 minutes • Preset tour - one (1), consisting of up to 99 scenes, consecutively
Supported Languages	English, French, German, Spanish, Portuguese, Polish, Italian, Dutch

User Connections

Power	
• Camera, Indoor	24 VAC, 50/60 Hz or 12 VDC
• Camera, Outdoor	24 VAC, 50/60 Hz
• Heater, Outdoor Models	24 VAC, 50/60 Hz
Control	Biphase +/-, RS-485, Bilinx
Video	BNC
Alarm Input (2)	NC/NO
Alarm Output	Open collector NPN 32 VDC @ 150 mA max

Construction

Material	Cast aluminum
Color	White or Charcoal
Size (Diameter x Height)	6.02 in. x 4.61 in. (153.0 mm x 133.0 mm), Cast aluminum
Bubble	4.0 in. (10.2 cm), Polycarbonate

Ordering Information

VEZ-211-ICCS Indoor AutoDome Easy II Clear 10x Color PAL Indoor AutoDome Easy II charcoal 10x Color PAL camera with clear bubble	VEZ-211-ICCS
VEZ-221-ICCS Indoor AutoDome Easy II Clear 10x Color NTSC Indoor AutoDome Easy II charcoal 10x Color NTSC camera with clear bubble	VEZ-221-ICCS
VEZ-211-ICTS Indoor AutoDome Easy II Tinted 10x Color PAL Indoor AutoDome Easy II charcoal 10x Color PAL camera with tinted bubble	VEZ-211-ICTS
VEZ-221-ICTS Indoor AutoDome Easy II Tinted 10x Color NTSC Indoor AutoDome Easy II charcoal 10x Color NTSC camera with tinted bubble	VEZ-221-ICTS
VEZ-211-IWCS Indoor AutoDome Easy II Clear 10x Color PAL Indoor AutoDome Easy II white 10x Color PAL camera with clear bubble	VEZ-211-IWCS

Ordering Information	
VEZ-221-IWCS Indoor AutoDome Easy II Clear 10x Color NTSC Indoor AutoDome Easy II white 10x Color NTSC camera with clear bubble	VEZ-221-IWCS
VEZ-211-IWTS Indoor AutoDome Easy II Tinted 10x Color PAL Indoor AutoDome Easy II white 10x color PAL camera with tinted bubble	VEZ-211-IWTS
VEZ-221-IWTS Indoor AutoDome Easy II Tinted 10x Color NTSC Indoor AutoDome Easy II white 10x color NTSC camera with tinted bubble	VEZ-221-IWTS
Accessories	
VEZ-A2-IC AutoDome Easy II Indoor Ceiling Mount	VEZ-A2-IC
VEZ-A2-JC Surface Mount Adapter Charcoal adapter for AutoDome Junior surface installations	VEZ-A2-JC
VEZ-A2-JW Surface Mount Adapter White adapter for AutoDome Junior surface installations	VEZ-A2-JW
VEZ-A2-PC AutoDome Junior Pipe Mount Charcoal	VEZ-A2-PC
VEZ-A2-PW AutoDome Junior Pipe Mount White	VEZ-A2-PW
VEZ-A2-WC AutoDome Junior Wall Mount Charcoal	VEZ-A2-WC
VEZ-A2-WW AutoDome Junior Wall Mount White	VEZ-A2-WW
VEZ-SBUB-CL AutoDome Easy II Clear Bubble	VEZ-SBUB-CL
VEZ-SBUB-TI AutoDome Easy II Tinted Bubble	VEZ-SBUB-TI
LTC 9349MK In-ceiling Mounting Kit In-ceiling mounting kit	LTC 9349MK
Software Options	
VP-CFGSFT Bilinx Configuration Tool configuration software with USB adapter	VP-CFGSFT

AutoDome Easy II IP



Features

- ▶ **Choice of standard, including high-performance H.264 and JPEG**
- ▶ **High-quality H.264 compression at 4CIF/D1 and CIF resolutions**
- ▶ **Tri-streaming generates three independent IP video streams (simultaneous H.264 dual streams and JPEG streaming)**
- ▶ **ONVIF compliant**
- ▶ **Embedded Intelligent Video Analytics (IVA) eliminates dedicated PCs and associated software maintenance (optional)**
- ▶ **Durable vandal-resistant housing and bubble**
- ▶ **Ultra compact for discrete surveillance and improved aesthetics in indoor and outdoor applications**
- ▶ **High-speed 360-degree continuous pan**
- ▶ **High resolution/sensitivity 530 TVL color camera**
- ▶ **120x zoom (10x optical, 12x digital)**

AutoDome Easy II IP is a rugged, extremely compact, and easy to install PTZ camera system which incorporates many features typically only found in traditional high-speed dome cameras. This discrete, high-speed dome camera has been specifically designed to deliver uncompromised functionality and performance at a very affordable price for indoor and outdoor applications.

The AutoDome Easy II IP provides direct network connection using H.264 and JPEG compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality. The AutoDome Easy II IP provides complete network-based control of all dome functionality including pan/tilt/zoom operation, presets, tours and alarming as well as web-based configuration of all dome settings.

The AutoDome Easy II IP conforms to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer.

AutoDome Easy II IP highlights

With a dome diameter of only 4 inches (10.2 cm), the AutoDome Easy II IP is about 70% smaller than traditional PTZ cameras and 20% smaller than other compact domes. These compact dimensions make the AutoDome Easy II IP ideal for discrete surveillance applications.

Despite its compact design, the AutoDome Easy II IP delivers state-of-the-art technology and features that are rare to most compact PTZ cameras. Its variable pan and tilt speeds and autopivot ensure optimal camera control and viewing at all zoom levels. The high-performance 120x (10x optical/12x digital) zoom autofocus camera incorporates the latest digital imaging technology with excellent sensitivity and resolution. With 99 user-defined presets as well as multiple tour and autopan modes, the AutoDome Easy II IP is not small on features.

A single AutoDome Easy II IP provides as much coverage as four fixed mini domes and is priced lower than a traditional PTZ dome camera. The AutoDome Easy II IP maximizes your security investment by integrating with the entire line of Bosch video products including variable speed Allegiant matrix switchers and Divar XF digital recorders, as well as the full range of Bosch video over IP products.

And, the AutoDome Easy II IP is simple to install and use; available with surface, wall, recessed, and pipe mount options. These mounting options plus the Outdoor Installation kit ensure that the AutoDome Easy II IP can be mounted nearly anywhere.

System Overview

High-performance 120x PTZ color camera

The AutoDome Easy II IP PTZ cameras have a 1/4-inch color CCD. With 530 TVL resolution and sensitivity to below 1.0 lux, the AutoDome Easy II IP Series offers exceptional performance at a very affordable price.

The AutoDome Easy II IP supports up to 99 user-defined pre-positions, as well as 1 preset tour, 2 recorded tours, and 2 auto-pan modes. The preset tour can be programmed with up to 99 prepositions and a configurable dwell time between positions. The recorded tours playback up to 15 minutes of any manual camera movements made during the recording, including the rate of pan, tilt and zoom speeds and other lens setting changes.

Pan and tilt preset repeatability are accurate to within ± 0.1 degrees to ensure that the correct scene is captured every time. AutoDome Easy II IP delivers variable pan/tilt speeds from a crawl speed of only 0.1 degrees per second up to an ultra-quick 120 degrees per second. The dome is capable of pan speeds of 360 degrees per second and tilt speeds of 100 degrees per second between prepositions. AutoDome Easy II IP provides a tilt range of 0 to 94 degrees, and a pan range of up to 360 degrees continuous rotation.

The patented AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera) ensure optimal control.

Ultra-efficient H.264 encoding

AutoDome Easy II IP uses an advanced H.264 encoder to create DVD-quality streaming video at ultra-low bit rates. Use of H.264 encoding, bandwidth throttling and multicasting capabilities, minimizes bandwidth and storage usage to significantly reduce costs. AutoDome Easy II IP supports 4CIF and CIF resolutions at frame rates up to 25 and 30 images per second (for PAL and NTSC respectively).

Tri-streaming video

The AutoDome Easy II IP is capable of generating Two independent H.264 streams with up to 4CIF resolution plus one JPEG stream simultaneously. This profile allows you to stream high-quality H.264 images for live viewing and recording, and at the same time, stream JPEG images to a remote FTP server or PDA device.

ONVIF conformance

The AutoDome Easy II IP conforms to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

Intelligence

With built-in video content analysis, the standard AutoDome Easy II IP reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. This camera comes with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper detection capabilities.

The AutoDome Easy II IP also features Bosch's Intelligent Video Analysis (IVA) in a dedicated, optimized version. IVA is state-of-the-art intelligent video analysis that reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.

Rugged reliability

A heavy-duty, tamper-resistant aluminum housing and rugged polycarbonate bubble protect the camera from vandalism and theft, ensuring the AutoDome Easy II IP continues to deliver critical images even in the toughest environments.

As with all Bosch products, the AutoDome Easy II IP has been subjected to the industry's most comprehensive and demanding battery of endurance tests such as HALT (highly accelerated life testing) to make sure it will hold up through years of use. And of course, it comes with Bosch's industry-leading 3-year warranty.

Functions

The following are some of the features that make the AutoDome Easy II IP Series the perfect fit for a variety of indoor surveillance applications.

iSCSI device support

Built-in iSCSI support allows AutoDome Easy II IP to stream video directly to an iSCSI RAID array. This enables local video storage just like a conventional DVR without streaming high bandwidth video across the network. Local recording, or Recording at the Edge, minimizes bandwidth usage and makes system recording performance totally independent from network performance.

Network-based control and configuration

The AutoDome Easy II IP enables full camera control and configuration capabilities over the network. Operators or technicians can control camera pan/tilt/zoom operation, presets, tours, and alarm management functions virtually anywhere without need for additional wiring.

The embedded web server lets the installer access all the user settings, make camera adjustments, and update firmware via a standard web browser.

Device management

Simple Network Management Protocol (SNMP) support facilitates the remote monitoring and management. AutoDome Easy II IP provides full support for SNMP v3.

Cost effective coverage

It typically requires four or more fixed dome cameras to provide a full 360 degrees of surveillance coverage. Traditional PTZ dome cameras provide full coverage, but at a significantly higher cost. A single AutoDome Easy II IP provides as much coverage as four fixed domes, but is priced lower than a traditional PTZ dome camera. Not only is your initial investment smaller, but installation and maintenance costs are reduced as well.

Superior privacy masking

The AutoDome Easy II IP allows for a total of 12 individual privacy masks, with up to 12 displayed in the same scene. Unlike conventional privacy masks, these can each be programmed with three, four, or even five corners to cover more complex shapes. As the camera is zoomed each mask changes size smoothly and quickly ensuring that the covered object cannot be seen. You also have a choice of black, white, and blurred characteristics. The blurred option comes in handy when privacy is an issue, but determining the presence of motion is still required.

Ease of installation and servicing

The AutoDome Easy II IP has been designed for quick and easy installation; a key feature from Bosch CCTV products. The dome comes fully assembled and ready for surface mount applications. Also available are wall, recessed, and pipe mounting kits which allow the AutoDome Easy II IP to be easily adapted for the individual site requirements. Available in white or charcoal.

Power over Ethernet

Power for indoor camera models may be supplied via a Power over Ethernet (IEEE 802.3af) compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera.

Viewing

View the video on a PC using a Web browser, in the Bosch Video Management System or Divar XF, or integrate it into another video management system.

1 Video Format

- 1 PAL
- 2 NTSC

2 Camera Type

- 1 Color (10x)

3 Housing

- E Outdoor
- I Indoor

4 Color

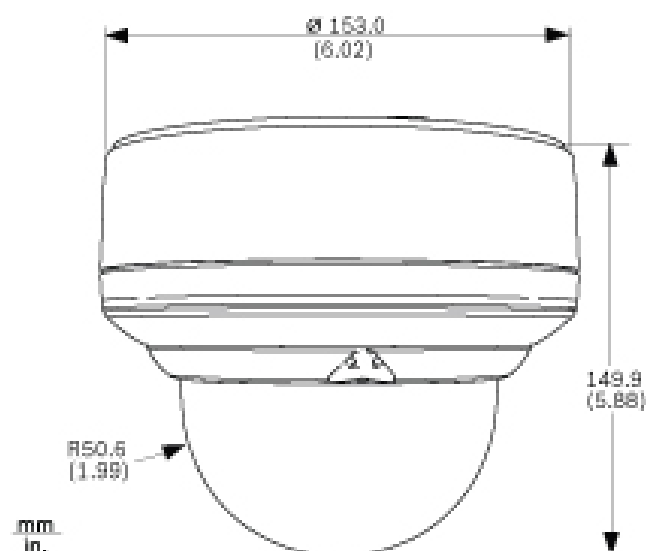
- C Charcoal
- W White

5 Bubble

- C Clear
- T Tinted

6 Intelligent Video Analysis

- No IVA
- IVA IP with IVA

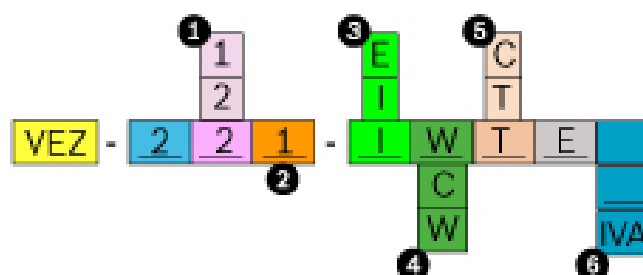


AutoDome Easy II IP Dimensions

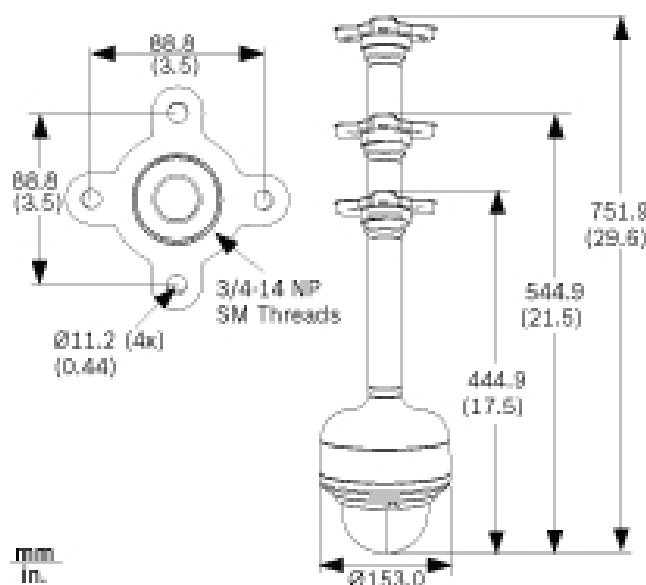
Certifications and Approvals

Region	Certification
Europe	CE
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards
Environmental (Outdoor models)	IP65

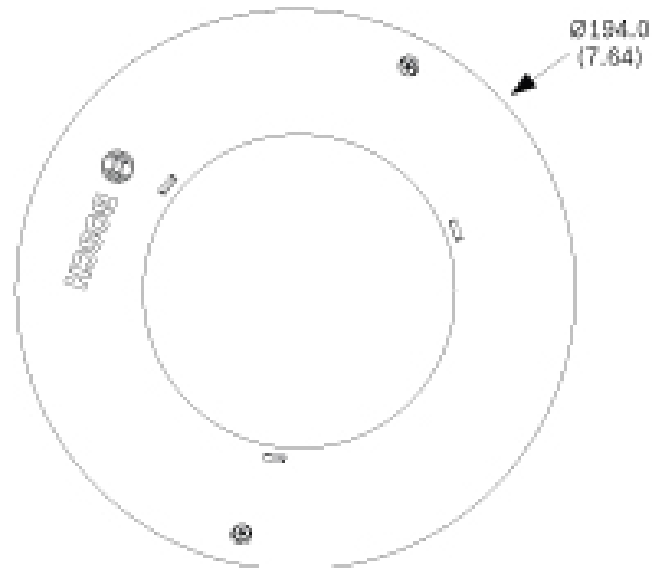
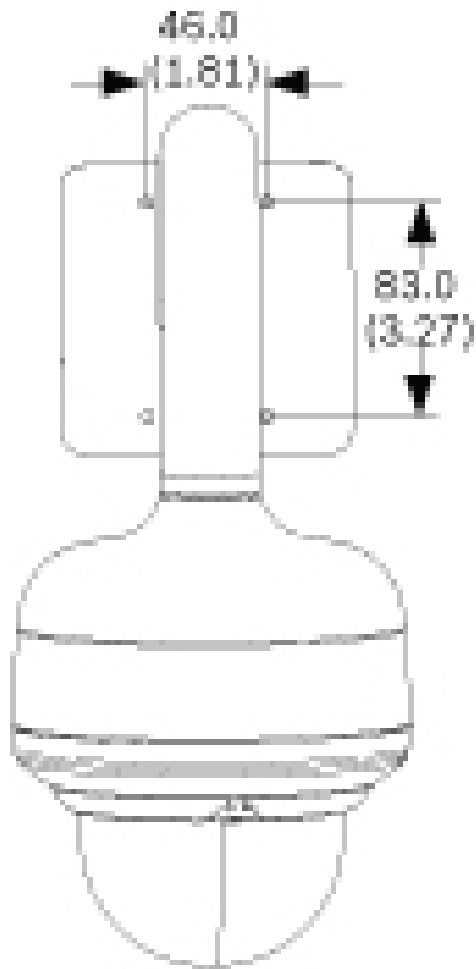
Installation/Configuration Notes



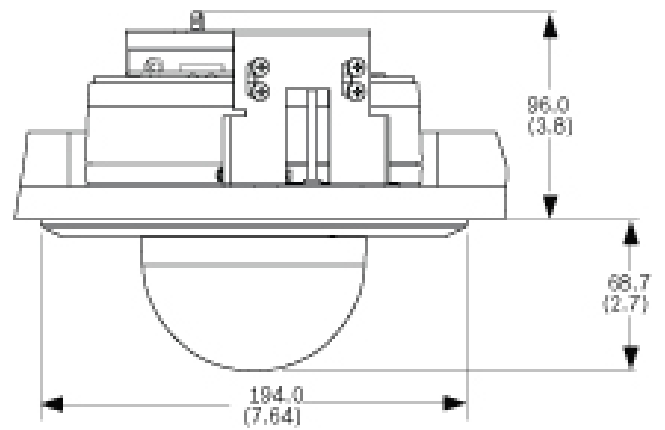
Ordering Guide



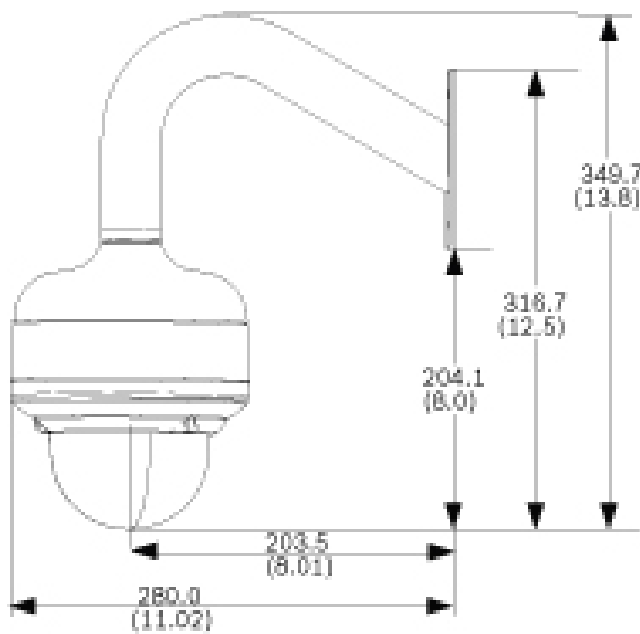
Pipe Mount Dimensions



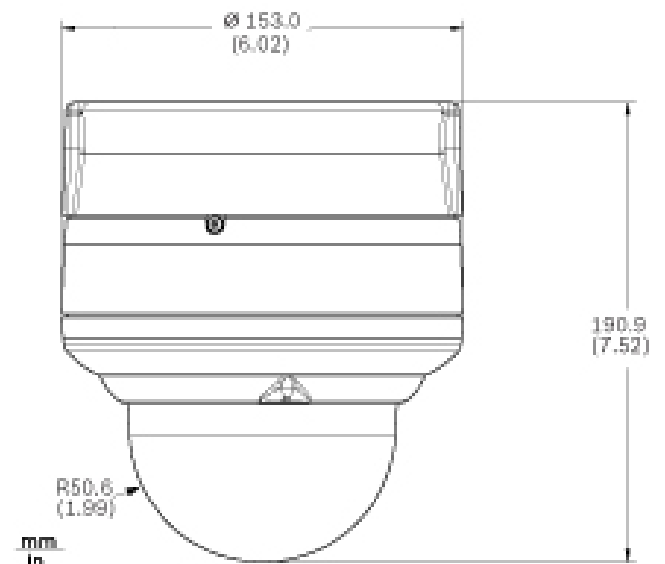
Recess Mount In-ceiling



In-ceiling Dimensions



Wall Mount Dimensions

mm
in.

Surface Mount Dimensions

Technical Specifications**Camera 10x Color**

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)	
Lens	10x Zoom (4.2–42.0 mm) (f/1.8)	
Focus	Automatic with manual override	
Iris	Automatic with manual override (F1.8 to F2.9)	
Field of View	Approx. 4.6° (TELE end) to 46° (Wide end)	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	AGC on/off (28dB max)	
Synchronization	Internal/external	
Aperture Correction	User adjustable	
Horizontal Resolution	530 TVL typical	
Digital	12x	
Optical Zoom	10x	
Optical Zoom FOV	4.6° to 46°	
Sensitivity (typical)	30 IRE	50 IRE
With Tinted Bubble*		
SensUP Off	0.83 lx	1.67 lx
SensUP On (1/4)	0.043 lx	0.110 lx
*With optional clear bubble, approximately 0.6 F-stop improvement.		
SNR	50 dB	
White Balance	Auto, indoor, outdoor, 1 push	

Video

Standards	H.264 (ISO/IEC 14496-10), M-JPEG, JPEG	
Streaming	Multiple, individually configurable streams in H.264 and JPEG, configurable frame rate and bandwidth	
GOP Structure	I, IP, IPBB	
Data Rate	9.6 kbps to 6 Mbps	

Resolutions and Frame Rates

Name	NTSC	PAL
4CIF/D1	704 x 480, 30 ips	704 x 576, 25 ips
CIF	352 x 240, 30 ips	352 x 288, 25 ips
Overall IP delay	240 ms	
Frame rate	1 to 50/60 (PAL/NTSC)	

Network

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, RTSP, 802.1x, iSCSI, DynDNS, UPnP
Ethernet	100 Base-TX, auto-sensing, half/full duplex, RJ45
Power over Ethernet (Indoor models only)	IEEE 802.3af

Software Control

Unit Configuration	Via Microsoft Internet Explorer 7.0 Web browser or higher, Divar XF, Vidos, or Configuration Manager
Software Update	Flash ROM, remote update

Mechanical/Electrical

Weight	1.3 kg (2.86 lb)
Pan Range	0-360° continuous
Tilt Angle	0-94°
Variable Speed	0.1°/s-120°/s
Pre-position Speed	Pan:360°/s Tilt: 100°/s
Preset Accuracy	± 0.1° typ.

Rated Voltage

• Camera, Indoor	24 VAC ± 10%, 50/60 Hz or Power over Ethernet (IEEE 802.3af Class 3)
• Camera, Outdoor	24 VAC ± 10%, 50/60 Hz
• Heater, Outdoor Models	24 VAC ± 10%, 50/60 Hz

Power Draw: (typ.)

• Indoor Models	12 W
• Outdoor Models	Camera only: 12 W Heater only: 15 W Total: 27 W

Environmental

Operating Temp.	
• Indoor Models	–10°C to 40°C (14°F to 104°F)
• Outdoor Models	–30°C to 50°C (–22°F to 122°F)
Operation Humidity	0% to 90% relative, non-condensing
Storage Temp.	–20°C to 60°C (–4°F to 140°F)
Environmental Rating	
• Indoor Models	Rated for indoor use only
• Outdoor Models	Rated for IP65

Miscellaneous

Sectors/Titling	8 independent sectors with 16-character titles/sector
Pre-positions	99, each with 16-character titles
Guard Tours	Two (2) types of tours: •Recorded tours - two (2), total duration 15 minutes •Preset tour - one (1), consisting of up to 99 scenes, consecutively
Supported Languages	English, French, German, Spanish, Portuguese, Polish, Italian, Dutch, and Russian

User Connections

Power	
• PoE, Indoor Models	RJ-45 100 Base-TX Ethernet Power over Ethernet IEEE 802.3af Class 3
• Camera, All Models	24 VAC, 50/60 Hz
• Heater, Outdoor Models	24 VAC, 50/60 Hz
Video and Control	RJ-45 100 Base-TX Ethernet
Alarm Input (2)	NC/NO
Alarm Output	Open collector NPN 32 VDC @ 150 mA max

Construction

Material	Cast aluminum
Color	White or Charcoal
Size (Diameter x Height)	6.02 in. x 4.61 in. (153.0 mm x 133.0 mm), Cast aluminum
Bubble	4.0 in. (10.2 cm), Polycarbonate

Ordering Information

VEZ-211-EWCE Outdoor AutoDome Easy II IP Clear 10x Color PAL Outdoor AutoDome Easy II IP white 10x Color PAL camera with clear bubble	VEZ-211-EWCE
VEZ-221-EWCE Outdoor AutoDome Easy II IP Clear 10x Color NTSC Outdoor AutoDome Easy II IP white 10x Color NTSC camera with clear bubble	VEZ-221-EWCE
VEZ-211-ECCE Outdoor AutoDome Easy II IP Clear 10x Color PAL Outdoor AutoDome Easy II IP charcoal 10x Color PAL camera with clear bubble	VEZ-211-ECCE
VEZ-221-ECCE Outdoor AutoDome Easy II IP Clear 10x Color NTSC Outdoor AutoDome Easy II IP charcoal 10x Color NTSC camera with clear bubble	VEZ-221-ECCE
VEZ-211-EWTE Outdoor AutoDome Easy II IP Tinted 10x Color PAL Outdoor AutoDome Easy II IP white 10x Color PAL camera with tinted bubble	VEZ-211-EWTE
VEZ-221-EWTE Outdoor AutoDome Easy II IP Tinted 10x Color NTSC Outdoor AutoDome Easy II IP white 10x Color NTSC camera with tinted bubble	VEZ-221-EWTE
VEZ-211-ECTE Outdoor AutoDome Easy II IP Tinted 10x Color PAL Outdoor AutoDome Easy II IP charcoal 10x Color PAL camera with tinted bubble	VEZ-211-ECTE
VEZ-221-ECTE Outdoor AutoDome Easy II IP Tinted 10x Color NTSC Outdoor AutoDome Easy II IP charcoal 10x Color NTSC camera with tinted bubble	VEZ-221-ECTE
VEZ-211-IWCE Indoor AutoDome Easy II IP Clear 10x Color PAL Indoor AutoDome Easy II IP white 10x Color PAL camera with clear bubble	VEZ-211-IWCE
VEZ-221-IWCE Indoor AutoDome Easy II IP Clear 10x Color NTSC Indoor AutoDome Easy II IP white 10x Color NTSC camera with clear bubble	VEZ-221-IWCE
VEZ-211-ICCE Indoor AutoDome Easy II IP Clear 10x Color PAL Indoor AutoDome Easy II IP charcoal 10x Color PAL camera with clear bubble	VEZ-211-ICCE
VEZ-221-ICCE Indoor AutoDome Easy II IP Clear 10x Color NTSC Indoor AutoDome Easy II IP charcoal 10x Color or NTSC camera with clear bubble	VEZ-221-ICCE

Ordering Information

VEZ-211-IWTE Indoor AutoDome Easy II IP Tinted 10x Color PAL Indoor AutoDome Easy II IP white 10x Color PAL camera with tinted bubble	VEZ-211-IWTE
VEZ-221-IWTE Indoor AutoDome Easy II IP Tinted 10x Color NTSC Indoor AutoDome Easy II IP white 10x Color NTSC camera with tinted bubble	VEZ-221-IWTE
VEZ-211-ICTE Indoor AutoDome Easy II IP Tinted 10x Color PAL Indoor AutoDome Easy II IP charcoal 10x Color or PAL camera with tinted bubble	VEZ-211-ICTE
VEZ-221-ICTE Indoor AutoDome Easy II IP Tinted 10x Color NTSC Indoor AutoDome Easy II IP charcoal 10x Color or NTSC camera with tinted bubble	VEZ-221-ICTE
VEZ-211-EWCEIVA Outdoor AutoDome Easy II IP with IVA Clear 10x Color PAL Outdoor AutoDome Easy II IP with IVA, white 10x Color PAL camera with clear bubble	VEZ-211-EWCEIVA
VEZ-221-EWCEIVA Outdoor AutoDome Easy II IP with IVA Clear 10x Color NTSC Outdoor AutoDome Easy II IP with IVA, white 10x Color NTSC camera with clear bubble	VEZ-221-EWCEIVA
VEZ-211-ECCEIVA Outdoor AutoDome Easy II IP with IVA Clear 10x Color PAL Outdoor AutoDome Easy II IP with IVA, charcoal 10x Color PAL camera with clear bubble	VEZ-ECCEIVA
VEZ-221-ECCEIVA Outdoor AutoDome Easy II IP with IVA Clear 10x Color NTSC Outdoor AutoDome Easy II IP with IVA, charcoal 10x Color NTSC camera with clear bubble	VEZ-221-ECCEIVA
VEZ-211-EWTEIVA Outdoor AutoDome Easy II IP with IVA Tinted 10x Color PAL Outdoor AutoDome Easy II IP with IVA, white 10x Color PAL camera with tinted bubble	VEZ-211-EWTEIVA
VEZ-221-EWTEIVA Outdoor AutoDome Easy II IP with IVA Tinted 10x Color NTSC Outdoor AutoDome Easy II IP with IVA, white 10x Color NTSC camera with tinted bubble	VEZ-221-EWTEIVA
VEZ-211-ECTEIVA Outdoor AutoDome Easy II IP with IVA Tinted 10x Color PAL Outdoor AutoDome Easy II IP with IVA, charcoal 10x Color PAL camera with tinted bubble	VEZ-211-ECTEIVA
VEZ-221-ECTEIVA Outdoor AutoDome Easy II IP with IVA Tinted 10x Color NTSC Outdoor AutoDome Easy II IP with IVA, charcoal 10x Color NTSC camera with tinted bubble	VEZ-221-ECTEIVA
VEZ-211-IWCEIVA Indoor AutoDome Easy II IP with IVA Clear 10x Color PAL Indoor AutoDome Easy II IP with IVA, white 10x Color PAL camera with clear bubble	VEZ-211-IWCEIVA
VEZ-221-IWCEIVA Indoor AutoDome Easy II IP with IVA Clear 10x Color NTSC Indoor AutoDome Easy II IP with IVA, white 10x Color NTSC camera with clear bubble	VEZ-221-IWCEIVA

Ordering Information**VEZ-211-ICCEIVA Indoor AutoDome Easy II IP with IVA Clear 10x Color PAL** **VEZ-211-ICCEIVA**Indoor AutoDome Easy II IP with IVA, charcoal
10x Color PAL camera with clear bubble**VEZ-221-ICCEIVA Indoor AutoDome Easy II IP with IVA Clear 10x Color NTSC** **VEZ-221-ICCEIVA**Indoor AutoDome Easy II IP with IVA, charcoal
10x Color NTSC camera with clear bubble**VEZ-211-IWTEIVA Indoor AutoDome Easy II IP with IVA Tinted 10x Color PAL** **VEZ-211-IWTEIVA**Indoor AutoDome Easy II IP with IVA, white
10x Color PAL camera with tinted bubble**VEZ-221-IWTEIVA Indoor AutoDome Easy II IP with IVA Tinted 10x Color NTSC** **VEZ-221-IWTEIVA**Indoor AutoDome Easy II IP with IVA, white
10x Color NTSC camera with tinted bubble**VEZ-211-ICTEIVA Indoor AutoDome Easy II IP with IVA Tinted 10x Color PAL** **VEZ-211-ICTEIVA**Indoor AutoDome Easy II IP with IVA, charcoal
10x Color PAL camera with tinted bubble**VEZ-221-ICTEIVA Indoor AutoDome Easy II IP with IVA Tinted 10x Color NTSC** **VEZ-221-ICTEIVA**Indoor AutoDome Easy II IP with IVA, charcoal
10x Color NTSC camera with tinted bubble**Accessories****VEZ-A2-IC AutoDome Easy II Indoor Ceiling Mount** **VEZ-A2-IC****VEZ-A2-JC Surface Mount Adapter** **VEZ-A2-JC**
Charcoal adapter for AutoDome Junior surface installations**VEZ-A2-JW Surface Mount Adapter** **VEZ-A2-JW**
White adapter for AutoDome Junior surface installations**VEZ-A2-PC AutoDome Junior Pipe Mount** **VEZ-A2-PC**
Charcoal**VEZ-A2-PW AutoDome Junior Pipe Mount** **VEZ-A2-PW**
White**VEZ-A2-WC AutoDome Junior Wall Mount** **VEZ-A2-WC**
Charcoal**VEZ-A2-WW AutoDome Junior Wall Mount** **VEZ-A2-WW**
White**VEZ-SBUB-CL AutoDome Easy II Clear Bubble** **VEZ-SBUB-CL****VEZ-SBUB-TI AutoDome Easy II Tinted Bubble** **VEZ-SBUB-TI****LTC 9349MK In-ceiling Mounting Kit** **LTC 9349MK**
In-ceiling mounting kit

AutoDome 100 Series Fixed Camera System



Features

- ▶ **540TVL fixed dome series**
- ▶ **Fully interchangeable CPUs, cameras, housings, communications, and mounts**
- ▶ **Color and day/night camera options**
- ▶ **Available with 2.7–13.5 mm or 5–50 mm lens**
- ▶ **All versions allow for remote configuration and update**
- ▶ **Optional hybrid operation provides simultaneous analog (coax) and IP connectivity**
- ▶ **UTP transmission standard on all analog models**
- ▶ **Three-year warranty**

Bosch's AutoDome modular camera system is a revolutionary new concept in dome cameras. More than just a series of cameras, it's a dome platform built around a system of intelligent, interchangeable modules that allow you to update camera functionality quickly and cost-effectively. Using common components lets you install a basic camera system today and migrate to a more advanced version tomorrow – without having to replace the entire dome, thus protecting your initial investment.

Interchangeable modules

The entire AutoDome system is based on five interchangeable modules: the CPU, camera, housing, communications, and power supply. Simply swap one of AutoDome's interchangeable modules and quickly upgrade from analog to IP, color to day/night, or add motion tracking. Never before have you had the ability to adapt a security system to your changing needs this quickly or inexpensively.

By using the same housing components, all installations have a consistent look, and observers have no idea which type of camera (if any) is watching over them. This unique, modular design also gives you the flexibility to move cameras between different housings when special coverage is needed, or as site plan requirements change. For example, a fixed color camera over a specific area could easily be “hot-swapped” to a day/night camera without removing the power. Migrating from a fixed dome to a PTZ dome with advanced features such as AutoTrack II intelligent tracking can be done quickly and easily, without requiring dome removal or rewiring. AutoDome's Ethernet communications module allows you to add IP functionality while maintaining connectivity to existing analog inputs and outputs.

100 Series highlights

The AutoDome 100 Series combines the same high-quality housings used by AutoDome PTZ cameras with the award-winning imaging technology of Dinion high-resolution color or day/night fixed cameras and varifocal lenses.

The AutoDome 100 Series supports a variety of standard and optional video and data transmission methods, including Bilinx (over coax and UTP), fiber, and even TCP/IP over Ethernet. Remote control, configuration, and firmware updates can also be performed over these cables, offering you unparalleled control of your cameras.

The optional IP Communications Module has hybrid functionality to protect your current analog technology investment while providing a clear and stable migration path to fully digital, IP-based solutions. This allows you to move to IP video at your own pace – all at once or one camera at a time. And since all AutoDome modules are completely interchangeable, there is no need to replace expensive components (e.g., cameras) or labor-intensive components (e.g., mounts and housings).

Functions

The following are some of the features that make the AutoDome 100 Series the most flexible fixed dome camera systems in the security industry.

High-performance camera features

AutoDome 100 Series cameras have a 1/3-inch color CCD with Bosch's unique 15-bit Dinion digital imaging technology to deliver a 32-fold sensitivity improvement and a full 540 horizontal lines of resolution. In addition, AutoDome 100 Series cameras incorporate a number of features not found in other fixed dome cameras.

These include:

- **XF-Dynamic** - Extends the camera's dynamic range to deliver sharper, more detailed images and outstanding color reproduction accuracy.
- **NightSense** – Automatically activated under low-light conditions to extend the 100 Series' exceptional sensitivity by a factor of three during monochrome operation.

- SensUp – Increases integration time by a factor of 10 to dramatically enhance sensitivity.
- Back Light Compensation (BLC) – A fully programmable backlight compensation (BLC) area of interest and variable BLC level let 100 Series day/night cameras overcome even the most challenging entrance, vestibule, and lobby applications.
- Auto Black – Enhances contrast by compensating for reduced contrast due to fog, mist, or glare.
- Default Shutter – Automatically adjusts to the lens opening at fast shutter speeds, eliminating motion blur and providing remarkably clear and detailed images of fast-moving objects.

AutoDome 100 Series day/night versions automatically switch from color to monochrome by removing a mechanically switching IR filter in low-light conditions. This boosts the infrared illumination sensitivity while maintaining superior image quality.

Optional hybrid analog/IP operation

AutoDomes equipped with the optional TCP/IP Communications Module use an advanced H.264 encoder to create DVD-quality streaming video across a local or a wide area network, and can simultaneously stream CVBS video via coaxial cabling to support existing analog equipment. Network video streams are sent over IP networks and can be viewed with the Bosch Divar XF Digital Video Recorder, or on a PC running VIDOS video management software. Alternatively, a Bosch IP video decoder can be used to display the video on an analog CVBS or VGA monitor. For maximum accessibility, the video can be viewed using a web browser.

H.264 encoding

AutoDome's IP Communications Module uses the latest compression technology to provide DVD-quality 4CIF video at frame rates up to 25/30 PAL/NTSC images per second (IPS). The IP module also leverages bandwidth throttling and multicasting capabilities to efficiently manage bandwidth and storage requirements while delivering the best possible image quality and resolution.

Tri-streaming video

Bosch's innovative tri-streaming feature enables AutoDomes equipped with the optional IP Communications Module to generate independent streams simultaneously. This feature allows you to stream high-quality images for live viewing while recording at a reduced frame rate, and at the same time, stream images to a remote PDA device.

Unsurpassed reliability

AutoDome builds on Bosch's 10-plus years of experience designing and manufacturing dome camera systems. All AutoDome pendant housings (indoor and outdoor) are rated to provide IP 66 protection. Outdoor EnviroDome housings provide an operating temperature range down to -40° C (-40° F). The optional "XT" extended temperature kit allows AutoDome to operate in temperatures down to -55° C (-67° F), ensuring reliable operation in even the harshest environments.

All in-ceiling housings come standard with a rugged polycarbonate bubble. All pendant housings come with a low-impact, high-resolution acrylic bubble for enhanced image clarity. All housing feature recessed set screws and a recessed bubble latch to reduce the chance of damage from vandalism. Inside the dome, the power, data, and video are all protected against unexpected surges of power.

Ease of installation and servicing

Bosch's innovative software, the Configuration Tool for Imaging Devices (CTFID), allows operators or technicians to change camera settings and even update firmware from virtually anywhere without need for additional wiring. For the new Ethernet versions, an embedded Web server lets the installer access all the user settings, make camera adjustments, and update firmware via a standard Web browser.

AutoDome's innovative design simplifies installation and servicing. AutoDome reduces maintenance costs because you can replace individual modules instead of entire camera assemblies. Simply pop out the old module and slide in the new ones: it's almost as easy as changing a light bulb. All tethers have been replaced with hinges, which makes installation and servicing safer and easier. You can even access the built-in power supply without taking down the dome.

Feature Comparison Matrix

The following table provides an overview of the AutoDome camera family and its available features:

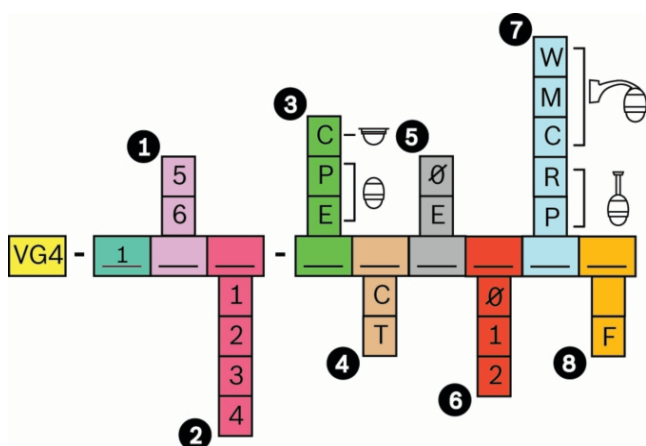
Module/Feature	AutoDome 100 Series	AutoDome 200 Series	AutoDome 300 Series	AutoDome 400 Series
Interchangeable Modules	■	■	■	■
High-Speed PTZ		■	■	■
Power View		■	■	■
Power Zoom		■	■	■
Smart Focus			■	■
Wide-Angle			■	■
High-Profile for Camera	■	■	■	■
Day/Night Operation	■		■	■
IP Services	■		■	■
Search/Extended Sensitivity	■		■	■
IP Physical Transmission	■	■	■	■
Remote Analog/IP Connectivity	■	■	■	■
Remote Access Configuration	■	■	■	■
Color Compensation			■	■
Self-Test/Calibration	■	■	■	■
Advanced, Remote Administration	■	■	■	■
Advanced Features				
Advanced IR Motion Tracking				■
Wide-Angle Extension				■
Advanced Illumination				■
Privacy Masking and Sector Masking			■	■
Advanced Motion Control			■	■

*Compatible over Coax and UTP transmission only. Remote configuration over IP via web interface.

Certifications and Approvals

Region	Certification	
Europe	CE	VG4-1ab-cdefgh, VG4-2ab-cdefgh, VG4-3ab-cdefgh, VG4-5ab-cdefgh, VG4-A-PAXx, VG4-A-PSUxx EMC Directive, Low-Voltage Directive
Electromagnetic Compatibility (EMC)		Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4 and EN50121-4
Product Safety		Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Ordering Guide

1 Video Format

- 5 Fixed PAL
- 6 Fixed NTSC

2 Camera Type

- 1 Color (2.7–13.5 mm)
- 2 Day/Night (2.7–13.5 mm)
- 3 Color (5–50 mm)
- 4 Day/Night (5–50 mm)

3 Enclosure

- C In-ceiling²
- P Indoor Pendant
- E Outdoor Pendant

4 Bubble

- C Clear
- T Tinted

5 Communications

- 0 Fixed (coax, UTP)
- E Ethernet (TCP/IP)

6 Power (pendants only)⁵

- 0 24 VAC¹
- 1 120 VAC
- 2 230 VAC

7 Mount Pendant

- W Wall
- M Mast
- C Corner
- R Roof⁴
- P Pipe
- No Mount²

8 Fiber Optics

- No Fiber
- F Fiber³

1 No transformer included. Customer must supply an approved 24 VAC limited power supply (VG4-A-PSUx or equivalent).

2 Recessed in-ceiling housing units do not require kit options for reference numbers 6, 7, or 8.

3 Fiber optic option is multi-mode with biphas. Requires LTC 4629 at the system.

4 Roof mount mounts to vertical Parapet. For flat roof installation, order an additional LTC 9230/01 Flat Roof Adapter Plate.

5 Optional trim skirt available as a separate purchase.

Technical Specifications

Camera 2.7 mm–13.5 mm Color

Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)	
Lens		
Iris	Automatic	
Field of View	78.3° to 18.5°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit) /manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC, PAL) typical	
Sensitivity (typical)	30 IRE	50 IRE
SensUp Off	0.29 lx	0.9 lx
SensUp On (15x)	0.029 lx	0.09 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

Camera 2.7 mm–13.5 mm Day/Night

Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)	
Lens		
Iris	Automatic	
Field of View	78.3° to 18.5°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit) /manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC, PAL) typical	
Sensitivity (typical)	30 IRE	50 IRE
Day Mode		
SensUp Off	0.29 lx	0.9 lx
SensUp On (15x)	0.029 lx	0.09 lx
Night Mode		
SensUp Off	0.12 lx	0.36 lx
SensUp On (15x)	0.012 lx	0.09 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

Camera 5 mm–50 mm - Color

Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)	
Lens		
Iris	Automatic	
Field of View	47.5° to 5.0°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit) /manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC, PAL) typical	
Sensitivity (typical)	30 IRE	50 IRE
SensUp Off	0.42 lx	1.3 lx
SensUp On (15x)	0.042 lx	0.13 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

Camera 5 mm–50 mm Day/Night

Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)	
Lens		
Iris	Automatic	
Field of View	47.5° to 5.0°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit) /manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC, PAL) typical	
Sensitivity (typical)	30 IRE	50 IRE
Day Mode		
SensUp Off	0.42 lx	1.3 lx
SensUp On (15x)	0.042 lx	0.13 lx
Night Mode		
SensUp Off	0.17 lx	0.52 lx
SensUp On (15x)	0.017 lx	0.052 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

Mechanical/Electrical

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Weight	2.66 kg (5.86 lb)	2.88 kg (6.3 lb)	3.32 kg (7.3 lb)
Power	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz
Power Draw: (typ)			
Analog Models	7.5 W	7.5 W	43.5 W ⁶
Ethernet Models	11.5 W	11.5 W	47.5 W ⁶

6 Add 16 W if using VG4-SHTR-XT kit.

Surge Suppression

Protection on Video	Peak current 10 kA (Gas Tube Arrestor), peak power 1000 W (10/1000 µ)
Protection on Power Input (Dome)	Peak current 7.3 A, peak power 600 W (10/1000 µ)
Protection on Power Output (Arm Power Supply)	Peak current 21.4 A, peak power 1500 W (10/1000 µ)

Environmental

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Design Rating	Plenum Rated	IP66	IP66
Operating Temp.	–10°C to 50°C (14°F to 122°F)	–10°C to 50°C (14°F to 122°F)	–40°C to 50°C (–40°F to 122°F)
Storage Temp.	–40°C to 60°C (–40°F to 140°F)	–40°C to 60°C (–40°F to 140°F)	–40°C to 60°C (–40°F to 140°F)
Humidity	0% to 90% relative, non-condensing	0% to 90% relative, non-condensing	0% to 100% relative, condensing

Miscellaneous

Communications Protocols Bilinx⁷

⁷ Bilinx not available on Ethernet models.

User Connections

Power (Camera)	21-30 VAC, 50/60 Hz
Power (Heater)	21-30 VAC, 50/60 Hz
Video	BNC/UTP ⁸

⁸ Ethernet models have no UTP analog output only BNC (coax).

Mounts/Accessories**Pendant Arm Mounts**

Wall Arm (No Transformer)	VG4-A-PA0
Wall Arm (120/230 VAC Transformer)	VG4-A-PA1 / VG4-A-PA2
Wall Arm (120/230 VAC Transformer and Fiber Optics)	VG4-A-PA1F / VG4-A-PA2F

Optional Mounting Plates for Arm Mounts

Corner Mounting Plate	VG4-A-9542
Mast (Pole) Mounting Plate	VG4-A-9541

Pendant Pipe Mounts

Pipe Mount Cap	VG4-A-9543
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Pendant Roof Mounts

Roof (Parapet) Mount	VG4-A-9230
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Optional Mounting Plates for Roof Mounts

Flat Roof Adapter for Parapet Mount	LTC 9230/01
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Power Supplies

Outdoor Power Supply Box (120/230 VAC Transformer)	VG4-A-PSU1 / VG4-A-PSU2
Outdoor Power Supply Box (120/230 VAC Transformer and Fiber Optics)	VG4-A-PSU1F / VG4-A-PSU2F

Pendant Arm Mounts

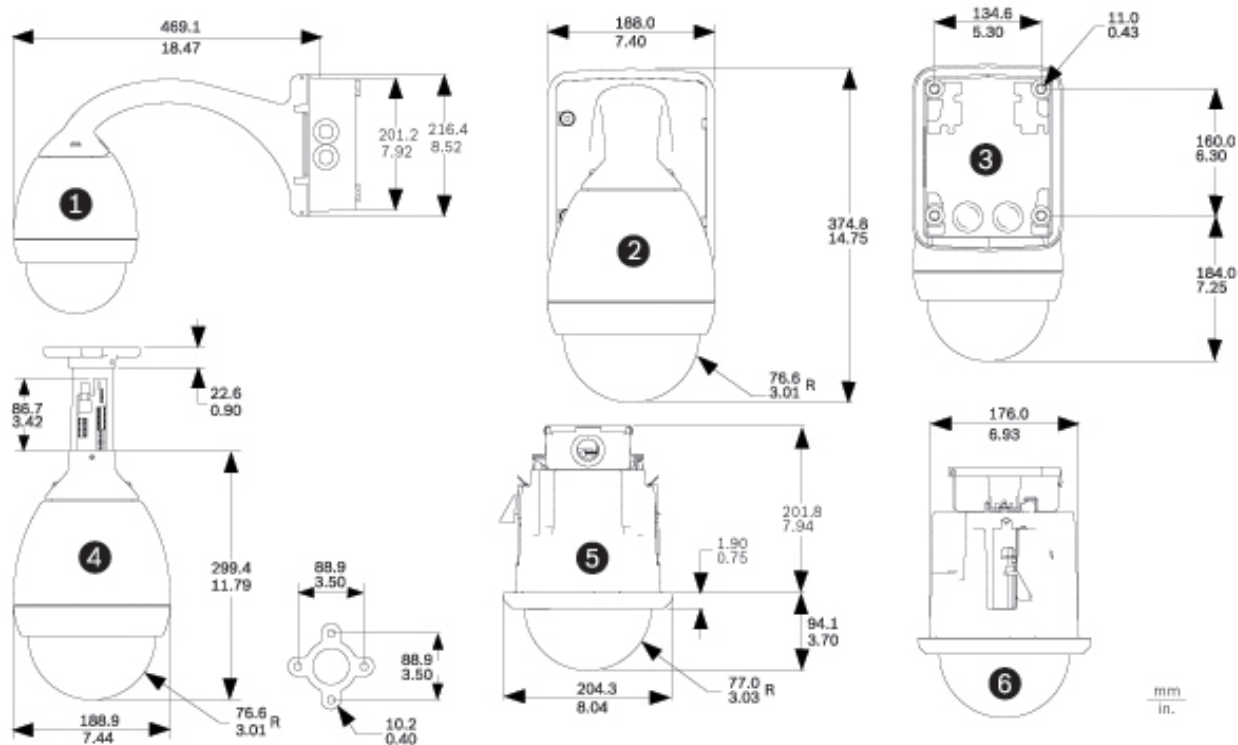
Extended temp heater module extends temperature range to -55°C (-67°F) for EnviroDome® only	VG4-SHTR-XT
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Cables

Monitor cable	S1460
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Fiber Optic Models

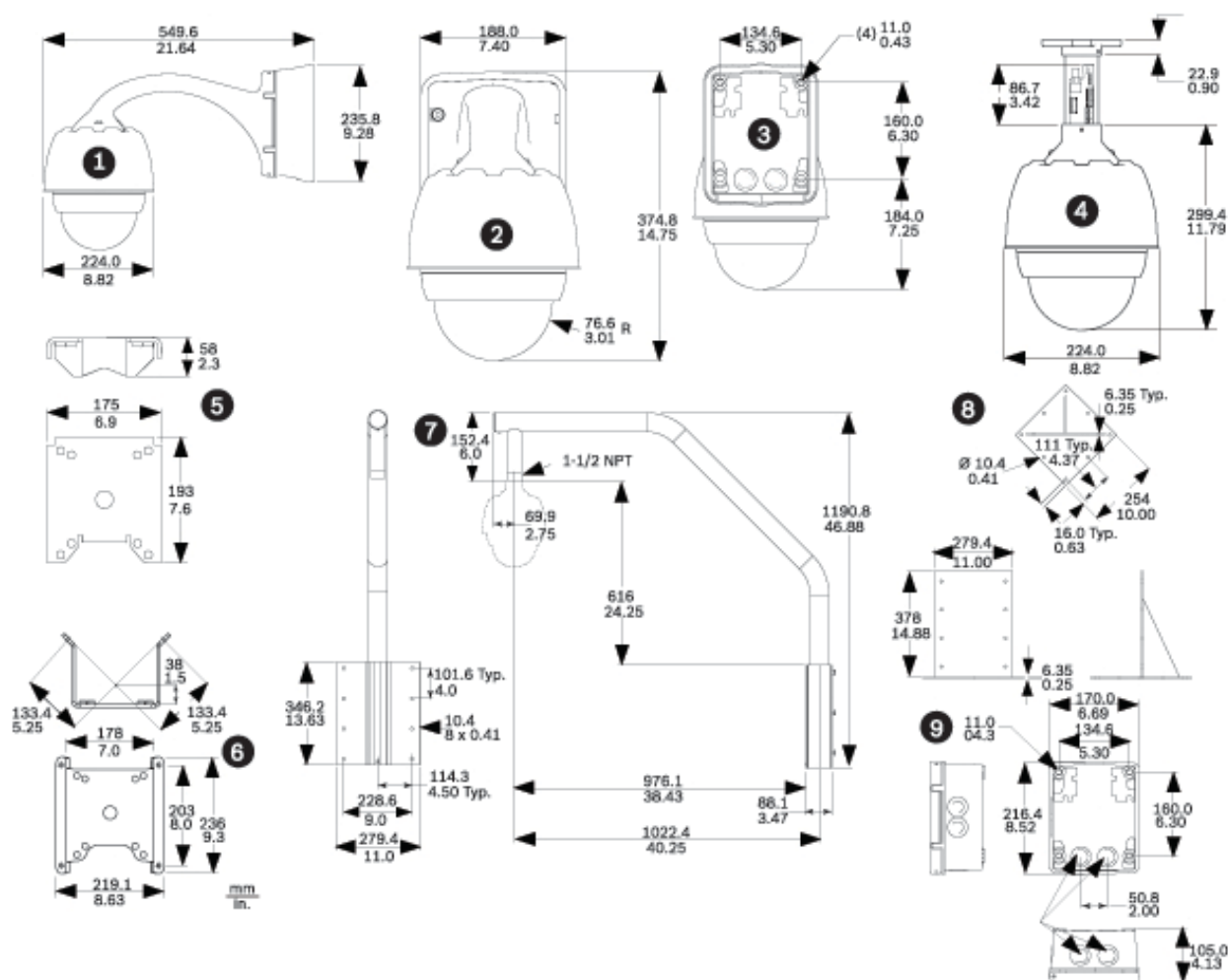
Optical Fiber Compatibility	50/125 mm, 62.5/125 mm, low loss multimode glass fiber, rated for a minimum system bandwidth of 20 MHz (video 850 nm/Control 1300 nm)
Max Distance	4 km (2.5 miles)

*Indoor System Dimensions***Reference Description**

1	Wall Mount – Side with power supply and trim skirt removed
2	Wall Mount – Front with power supply and trim skirt
3	Wall Mount – Back with power supply and trim skirt
4	Pipe Mount

Reference Description

5	In-ceiling Mount – Front
6	In-ceiling Mount – Side



Outdoor System Dimensions

Reference Description

- | | |
|---|---|
| 1 | Wall Mount – Side with power supply and trim skirt |
| 2 | Wall Mount – Front with power supply and trim skirt |
| 3 | Wall Mount – Back with power supply and trim skirt |
| 4 | Pipe Mount |
| 5 | Mast Mount |
| 6 | Corner Mount |
| 7 | Roof Mount |
| 8 | Roof Mount Adapter |
| 9 | Power Supply for Pipe and Roof Mounts |

AutoDome 200 Series PTZ Camera System



Features

- ▶ **Economical, high-speed PTZ dome**
- ▶ **Fully interchangeable CPUs, cameras, housings, communications, and mounts**
- ▶ **18x color camera**
- ▶ **Optional hybrid operation provides simultaneous analog (coax) and IP connectivity**
- ▶ **UTP transmission standard on all analog models**
- ▶ **All versions allow for remote configuration and update**
- ▶ **Multi-protocol capable**
- ▶ **Advanced diagnostics**
- ▶ **Three-year warranty**

Bosch's AutoDome modular camera system is a revolutionary new concept in dome cameras. More than just a series of cameras, it's a dome platform built around a system of intelligent, interchangeable modules that allow you to update camera functionality quickly and cost-effectively. Using common components lets you install a basic camera system today and migrate to a more advanced version tomorrow – without having to replace the entire dome, thus protecting your initial investment.

Interchangeable modules

The entire AutoDome system is based on five interchangeable modules: the CPU, camera, housing, communications, and power supply. Simply swap one of AutoDome's interchangeable modules and quickly upgrade from analog to IP, color to day/night, or add motion tracking. Never before have you had the ability to adapt a security system to your changing needs this quickly or inexpensively.

By using the same housing components, all installations have a consistent look, and observers have no idea which type of camera (if any) is watching over them. This unique, modular design also gives you the flexibility to move cameras between different housings when special coverage is needed, or as site plan requirements change. For example, an 18x PTZ camera over a specific area could easily be "hot-swapped" to a 26x day/night without removing the power.

Migrating from a basic dome to one with advanced features such as AutoTrack II intelligent tracking can be done quickly and easily, without requiring dome removal or rewiring. AutoDome's Ethernet communications module allows you to add IP functionality while maintaining connectivity to existing analog inputs and outputs.

200 Series highlights

The AutoDome 200 Series is an economical, high-speed dome camera that uses a high-performance, 18x color PTZ camera. The 200 Series supports a variety of standard and optional video and data transmission methods, including Bilinx (over coax and UTP), fiber, and even TCP/IP over Ethernet. Remote control, configuration, and firmware updates can also be performed over these cables, offering you unparalleled control of your cameras.

The optional IP Communications Module has hybrid functionality to protect your current analog technology investment while providing a clear and stable migration path to fully digital, IP-based solutions. This allows you to move to IP video at your own pace – all at once or one camera at a time. And since all AutoDome modules are completely interchangeable, there is no need to replace expensive components (for example cameras) or labor-intensive components (for example mounts and housings).

Functions

The following are some of the features that make the AutoDome 200 Series the most flexible PTZ dome camera systems in the security industry.

High-performance 18x PTZ color camera

AutoDome 200 Series PTZ color cameras have a 1/4-inch color CCD. With 470 TVL/480 TVL (NTSC/PAL) horizontal resolution and sensitivity down to 0.5 lux, the 200 Series offers exceptional performance at an affordable price. A rugged motor with fewer moving parts mean the 200 Series uses less power and is extremely reliable, making it ideal for high-usage applications.

With super-quick, 360° per-second pan and tilt speeds, the AutoDome 200 Series outperforms other domes in its class. As with all AutoDome Modular PTZ Camera Systems, the 200 Series includes AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera), so tracking a subject is effortless.

The 200 Series supports 64 pre-positions and a single preset tour. The preset tour has the capacity for up to 64 pre-positions with a configurable dwell time between pre-positions.

Supported menu languages include: English, French, German, Spanish, Portuguese, Italian, Dutch, and Polish.

Optional hybrid analog/IP operation

AutoDomes equipped with the optional TCP/IP Communications Module use an advanced H.264 encoder to create DVD-quality streaming video across a local or a wide area network, and can simultaneously stream CVBS video via coaxial cabling to support existing analog equipment. Network video streams are sent over IP networks and can be viewed with the Bosch Divar XF Digital Video Recorder, or on a PC running VIDOS video management software. Alternatively, a Bosch IP video decoder can be used to display the video on an analog CVBS or VGA monitor. For maximum accessibility, the video can be viewed using a web browser.

Tri-streaming video

Bosch's innovative tri-streaming feature enables AutoDomes equipped with the optional IP Communications Module to generate independent streams simultaneously. This feature allows you to stream high-quality images for live viewing while recording at a reduced frame rate, and at the same time, stream images to a remote PDA device.

Unsurpassed reliability

All housings feature recessed screws and latches for increased tamper resistance.

AutoDome pendant housings (indoor and outdoor) are rated to provide IP 66 protection. In addition, the pendant housings come equipped with a low-impact, high-resolution acrylic bubble for enhanced image clarity

AutoDome in-ceiling housings provide IP 54 protection and are rated IK 8 (IEC 62262). These housings feature an impact-resistant polycarbonate Rugged Bubble to protect your camera from vandalism. The Rugged Bubble can withstand impacts equivalent to a 4.5 kg (10 lb) weight dropped from a height of 3 m (10 ft).

Outdoor EnviroDome housings provide an operating temperature range down to -40°C (-40°F). The optional "XT" extreme temperature kit allows an AutoDome to operate in temperatures down to -60°C (-76°F), ensuring reliable operation in even the harshest environments.

The Pressurized Environmental Housing is rated to provide IP 67 protection for a VG4 Series AutoDome® Modular Camera System from the elements, both natural and manmade. It is the ideal surveillance solution for applications that require frequent wash-down, including traffic, transit, bridges, tunnels and coastal installations where salt, moisture, dust, insects and fumes threaten the long-term operation of the camera.

Ease of installation and servicing

Bosch's innovative software, the Configuration Tool for Imaging Devices (CTFID), allows operators or technicians to control the PTZ, change camera settings and even update firmware from virtually anywhere without need for additional wiring. For the new Ethernet versions, an embedded Web server lets the installer access all the user settings, make camera adjustments, and update firmware via a standard Web browser.

The AutoDome's innovative design simplifies installation and servicing. AutoDome reduces maintenance costs because you can replace individual modules instead of entire camera assemblies. Simply pop out the old module and slide in the new: it's almost as easy as changing a light bulb. All tethers have been replaced with hinges, making installation and servicing safer and easier. You can even access the built-in power supply without taking down the dome.

The AutoDome 200 Series has advanced, built-in diagnostics to simplify service and minimize downtime. Using the On Screen Display (OSD), a technician can quickly and easily check critical parameters (such as internal temperature and input voltage level) to verify that the dome is functioning within acceptable operating limits. If video is not present, a local inspection of three diagnostic LEDs at the camera site can identify the presence of video and control data.

Feature Comparison Matrix

The following table provides an overview of the AutoDome camera family and its available features:

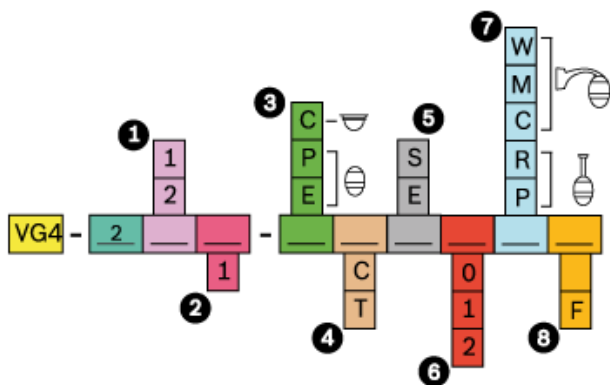
Standard Features	AutoDome 100 Series	AutoDome 200 Series	AutoDome 300 Series	AutoDome 500i Series
Interchangeable Modules	●	●	●	●
High Speed PTZ		●	●	●
Preset Shots		64	99	99
Preset Tour		●	●	●
Guard Tour			●	●
Alarm Inputs			7/4	7/4
High Resolution Camera	●	●	●	●
Day/Night Operation	●		●	●
IR Sensitive	●		●	●
SensUp Extended Sensitivity	●		●	●
UTP/Coax Transmission	●	●	●	●
Hybrid Analog/IP Connectivity	●	●	●	●
Bilinx Remote Configuration*	●	●	●	●
Cable Compensation			●	●
Hot-Swap Camera Modules	●	●	●	●
Ruggedized, Vandal-Resistant Enclosure	●	●	●	●
Advanced Features				
AutoTrack II Motion Tracking				●
Video Motion Detection				●
Image Stabilization				●
Privacy Masking and Sector Blanking			●	●
Advanced Alarm Control			●	●

*Compatible over Coax and UTP transmission only. Remote configuration over IP via web interface.

Certifications and Approvals

Region	Certification	
Europe	CE	VG4-1ab-cdefgh, VG4-2ab-cdefgh, VG4-3ab-cdefgh, VG4-5ab-cdefgh, VG4-A-PAXx, VG4-A-PSUxx EMC Directive, Low-Voltage Directive
Electromagnetic Compatibility (EMC)		Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4 and EN50121-4
Product Safety		Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Ordering Guide

1 Video Format

- 1 PTZ PAL
- 2 PTZ NTSC

2 Camera Type

- 1 18x Color PTZ

3 Enclosure

- C In-ceiling²
- P Indoor Pendant
- E Outdoor Pendant

4 Bubble

- C Clear Rugged
- T Tinted Rugged

5 Communications

- S Standard Analog (Coax/UTP)
- E Ethernet (TCP/IP)

6 Power⁵

- 0 24 VAC¹
- 1 120 VAC
- 2 230 VAC

7 Mount

- W Wall
- M Mast
- C Corner
- R Roof⁴
- P Pipe

8 Fiber Optics

- No Fiber
- F Fiber³

1 No transformer included. Customer must supply an approved 24 VAC limited power supply (VG4-A-PSUx or equivalent).

2 Recessed in-ceiling housing units do not require kit options for reference numbers 6, 7, or 8.

3 Fiber optic option is multi-mode with biphase. Requires LTC 4629 at the system.

4 Roof mount mounts to vertical Parapet. For flat roof installation, order an additional LTC 9230/01 Flat Roof Adapter Plate.

5 Optional trim skirt available as a separate purchase.

Technical Specifications

Camera 18x Color

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)	
Lens	18x Zoom (4.1–73.8 mm) F1.4 to F3.0	
Focus	Automatic with manual override	
Iris	Automatic with manual override	
Field of View	2.7° to 48°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit)	
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical	
Sensitivity (typical)	30 IRE	50 IRE
F1.4, 1/60 (1/50) shutter, max AGC	0.5 lx	0.8 lx
Electronic Shutter Speed (AES)	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

Mechanical/Electrical

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Weight	2.66 kg (5.86 lb)	2.88 kg (6.3 lb)	3.32 kg (7.3 lb)
Pan Range	360° cont.	360° cont.	360° cont.
Tilt Angle	1° above horizon	18° above horizon	18° above horizon
Variable Speed	0.1°/s-120°/s	0.1°/s-120°/s	0.1°/s-120°/s
Pre-position Speed	Pan: 360°/s Tilt: 100°/s	Pan: 360°/s Tilt: 100°/s	Pan: 360°/s Tilt: 100°/s
Preset Accuracy	± 0.1° typ.	± 0.1° typ.	± 0.1° typ.
Power	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz

Power Draw: (typ)

Analog Models	10 W	10 W	46 W ⁶
Ethernet Models	14 W	14 W	50 W ⁶

6 Add 16 W if using VG4-SHTR-XT kit.

Surge Suppression

Protection on Video	Peak current 10 kA (Gas Tube Arrester), peak power 1000 W (10/1000 μ)
Protection on RS-232/485, Bi-phase	Peak current 10 A, peak power 300 W (8/20 μ)
Protection on Alarm Inputs	Peak current 17 A, peak power 300 W (8/20 μ)
Protection on Alarm Outputs	Peak current 2 A, peak power 300 W (8/20 μ)
Protection on Relay Outputs	Peak current 7.3 A, peak power 600 W (10/1000 μ)
Protection on Power Input (Dome)	Peak current 7.3 A, peak power 600 W (10/1000 μ)
Protection on Power Output (Arm Power Supply)	Peak current 21.4 A, peak power 1500 W (10/1000 μ)

Environmental

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Design Rating	Plenum Rated	IP66	IP66
Operating Temp.	-10°C to 50°C (14°F to 122°F)	-10°C to 50°C (14°F to 122°F)	-40°C to 50°C (-40°F to 122°F)
Storage Temp.	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)
Humidity	0% to 90% relative, non-condensing	0% to 90% relative, non-condensing	0% to 100% relative, condensing

Miscellaneous

Sectors/Titling	16 independent sectors with 20-character titles/sector
Camera Setup/Control	Biphase, RS-232, RS-485, Bilinx ⁷ (coax)
Communications Protocols	Biphase, Bilinx ⁷ , Pelco P, and Pelco D
Pre-positions	64, each with 20-character titles
Preset Tour	One (1), consisting of up to 64 scenes, consecutively
Supported Languages	Czech, Dutch, English, French, German, Italian, Polish, Portuguese, Russian and Spanish

⁷ Bilinx not available on Ethernet models.

User Connections

Power (Camera)	21-30 VAC, 50/60 Hz
Power (Heater)	21-30 VAC, 50/60 Hz
Biphase \pm	Control Data
Audio Line In ⁸	9 K Ohm typ, 5.5 Vp-p max
RS-232 RX/TX or RS-485 \pm - optional control data (dip switch selectable)	
Video	BNC/UTP ⁹

⁸ With Ethernet models, the biphas \pm can optionally be used as the audio line in connector.

⁹ Ethernet models have no UTP analog output only BNC (coax).

Mounts/Accessories**Pendant Mounts**

Arm Mounts	
Wall Arm (No Transformer)	VG4-A-PA0
Wall Arm (120/230 VAC Transformer)	VG4-A-PA1 / VG4-A-PA2
Wall Arm (120/230 VAC Transformer and Fiber Optics)	VG4-A-PA1F / VG4-A-PA2F

Optional Mounting Plates for Arm Mounts

Corner Mounting Plate	VG4-A-9542
Mast (Pole) Mounting Plate	VG4-A-9541

Pipe Mounts

Pipe Mount Cap	VG4-A-9543
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Roof Mounts

Roof (Parapet) Mount	VG4-A-9230
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Optional Mounting Plates for Roof Mounts

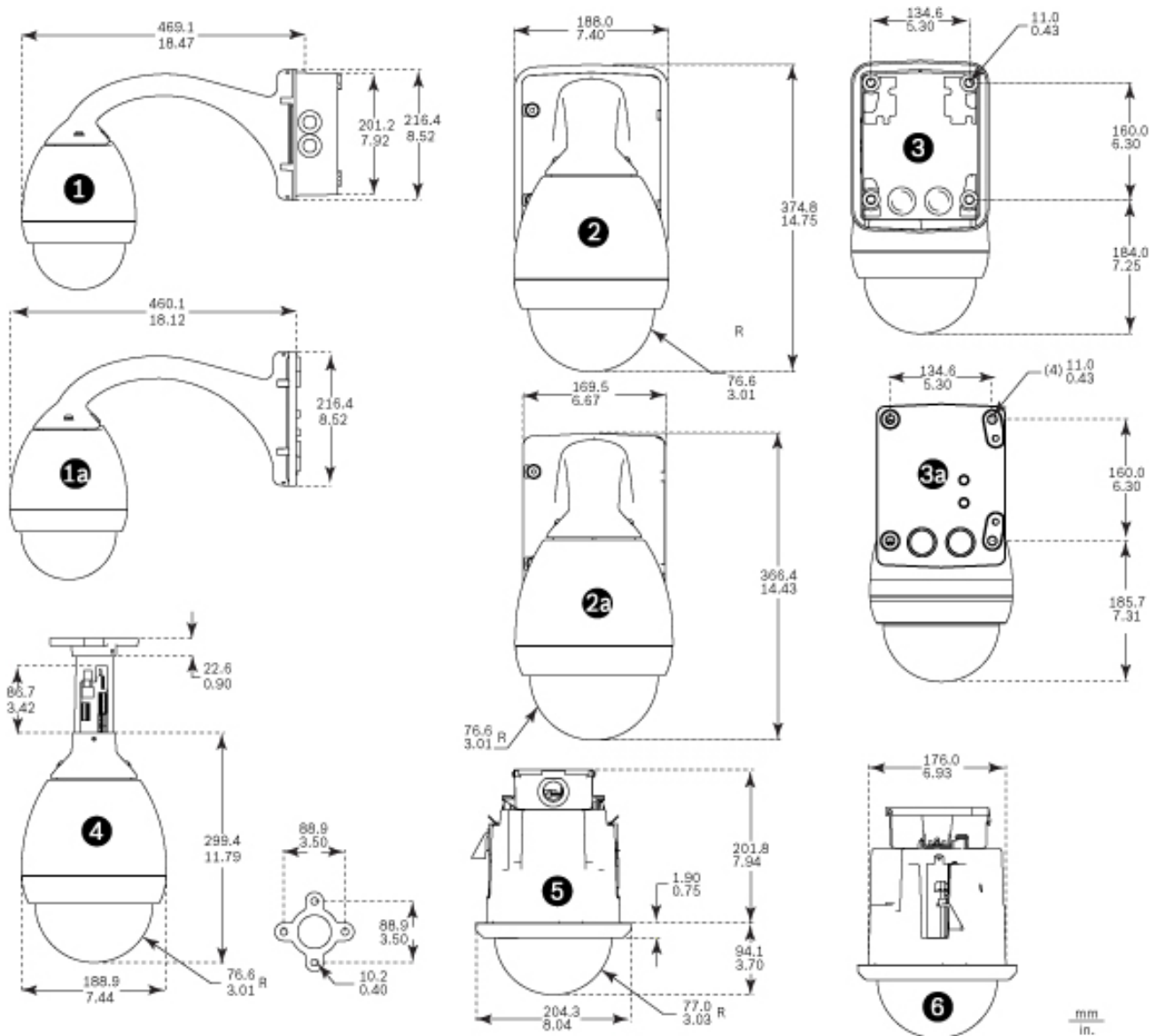
Flat Roof Adapter for Parapet Mount	LTC 9230/01
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Power Supplies

Outdoor Power Supply Box (120/230 VAC Transformer)	VG4-A-PSU1 / VG4-A-PSU2
Outdoor Power Supply Box (120/230 VAC Transformer and Fiber Optics)	VG4-A-PSU1F / VG4-A-PSU2F
Extended temp heater module extends temperature range to -60°C (-76°F) for EnviroDome® only	VG4-SHTR-XT

Fiber Optic Models

Optical Fiber Compatibility	50/125 mm, 62.5/125 mm, low loss multimode glass fiber, rated for a minimum system bandwidth of 20 MHz (video 850 nm/Control 1300 nm)
Max Distance	4 km (2.5 miles)



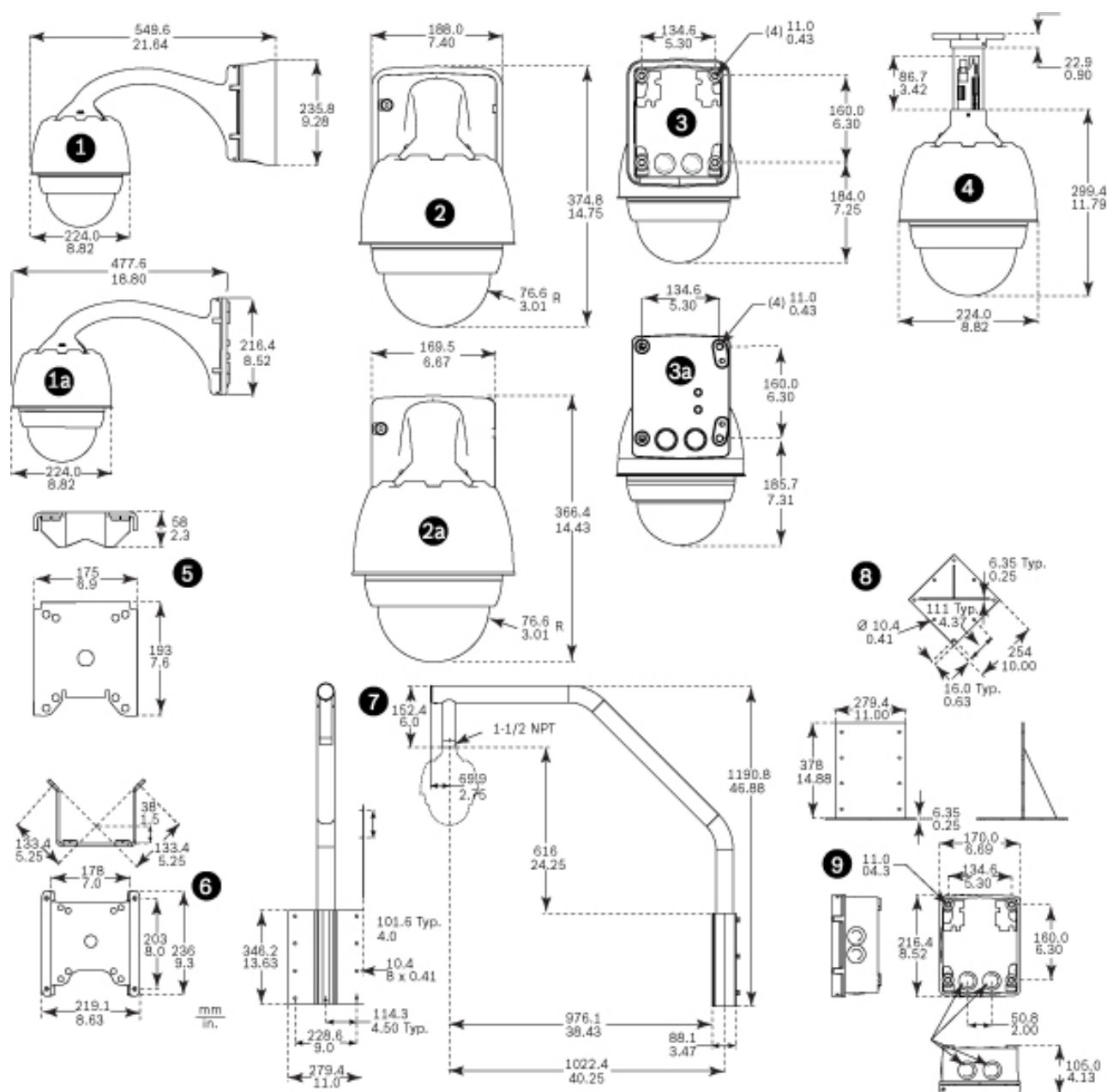
Indoor System Dimensions

Reference Description

1	Wall Mount - Side with power supply and trim skirt removed
1a	Wall/Mast Mount - Side with VG4-ARMPLATE
2	Wall Mount - Front with power supply and trim skirt
2a	Wall Mount - Front with power supply
3	Wall Mount - Back with power supply and trim skirt

Reference Description

3a	Wall Mount - Back with power supply
4	Pipe Mount
5	In-ceiling Mount - Front
6	In-ceiling Mount - Side



Outdoor System Dimensions

Reference Description

1	Wall Mount – Side with power supply and trim skirt
1a	Wall/Mast Mount – Side with VG4-ARMPLATE
2	Wall Mount – Front with power supply and trim skirt
2a	Wall Mount – Front with power supply
3	Wall Mount – Back with power supply and trim skirt
3a	Wall Mount – Back with power supply
4	Pipe Mount
5	Mast Mount
6	Corner Mount
7	Roof Mount
8	Roof Mount Adapter
9	Power Supply for Pipe and Roof Mounts

AutoDome 300 Series PTZ Camera System



Features

- ▶ **High-speed PTZ dome**
- ▶ **Fully interchangeable CPUs, cameras, housings, communications, and mounts**
- ▶ **Choice of 540 TVL 36x day/night camera with 128x wide dynamic range or 26x and 18x day/night cameras**
- ▶ **Optional hybrid operation provides simultaneous analog (coax) and IP connectivity**
- ▶ **Advanced privacy masking**
- ▶ **Advanced alarm control with rules engine**
- ▶ **UTP transmission standard on all analog models**
- ▶ **Cable compensation extends cabling distances**
- ▶ **Multi-protocol capable**
- ▶ **Three-year warranty**

Bosch's AutoDome modular camera system is a revolutionary new concept in dome cameras. More than just a series of cameras, it's a dome platform built around a system of intelligent, interchangeable modules that allow you to update camera functionality quickly and cost-effectively. Using common components lets you install a basic camera system today and migrate to a more advanced version tomorrow – without having to replace the entire dome, thus protecting your initial investment.

Interchangeable modules

The entire AutoDome system is based on five interchangeable modules: the CPU, camera, housing, communications, and power supply. Simply swap one of AutoDome's interchangeable modules and quickly upgrade from analog to IP, color to day/night, or add motion detection. Never before have you had the ability to adapt a security system to your changing needs this quickly or inexpensively.

By using the same housing components, all installations have a consistent look, and observers have no idea which type of camera (if any) is watching over them. This unique, modular design also gives you the flexibility to move cameras between different housings when special coverage is needed, or as site plan requirements change. For example, an 18x PTZ camera over a specific area could easily be "hot-swapped" to a 26x or 36x day/night without removing the power.

Migrating from a basic dome to one with advanced features such as AutoTrack II intelligent tracking can be done quickly and easily, without requiring dome removal or rewiring. AutoDome's Ethernet communications module allows you to add IP functionality while maintaining connectivity to existing analog inputs and outputs.

300 Series highlights

The AutoDome 300 Series includes support for 18x, 26x, and the industry-leading 36x day/night PTZ cameras, and several advanced features – including an alarm management "rules" engine and privacy masking.

The AutoDome 300 Series supports a variety of standard and optional video and data transmission methods, including Bilinx (over coax and UTP), fiber, and even TCP/IP over Ethernet. Remote control, configuration, and firmware updates can also be performed over these cables, offering you unparalleled control of your cameras. Cable compensation provides extended coaxial and UTP distance runs while preventing the image quality degradation caused by signal losses from long cable lengths.

The optional IP Communications Module has hybrid functionality to protect your current analog technology investment while providing a clear and stable migration path to fully digital, IP-based solutions. This allows you to move to IP video at your own pace – all at once or one camera at a time. And since all AutoDome modules are completely interchangeable, there is no need to replace expensive components (e.g., cameras) or labor-intensive components (e.g., mounts and housings).

Functions

The following are some of the features that make the AutoDome 300 Series the most flexible PTZ dome camera systems in the security industry.

High-performance PTZ day/night cameras

Image control and quality are integral aspects of any PTZ dome system, and the AutoDome delivers. The 300 Series is available with a choice of 18x, 26x, or an industry-leading 36x optical zoom lens, and all 300 Series systems offer a full 12x digital zoom. The 18x and 26x cameras provide 470 TVL (NTSC) or 480 TVL (PAL), and the 36x camera provides a full 540 TVL of horizontal resolution for outstanding clarity and image detail. The 36x camera also incorporates technology that dramatically improves the dynamic range by 128 times. Also known as WDR (wide-dynamic range), it results in clear image reproduction in extreme high-contrast environments.

The AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera) features ensure optimal control.

Day/night capabilities and outstanding sensitivity make 300 Series cameras exceptional performers in all lighting conditions. In low light, these cameras automatically switch from color to monochrome by removing the IR filter to boost infrared illumination sensitivity, while maintaining superior image quality. For operation in the darkest conditions, the SensUp control feature automatically extends the shutter speed to as much as one second. This increases sensitivity by more than **50** times.

With super-quick, 360° per-second pan and tilt speeds, the AutoDome 300 Series outperforms other domes in its class. The 300 Series supports 99 pre-positions and two styles of guard tours: preset and record/playback. The preset tour can handle up to 99 pre-positions with a configurable dwell time between pre-positions; the order and frequency with which each preset is visited can be customized. The AutoDome 300 Series also provides support for two recorded tours, which have a combined duration of 15 minutes of movement. These are recorded macros of an operator's movements, including pan, tilt, and zoom activities, and can be played back continuously.

Supported menu languages include: English, French, German, Spanish, Portuguese, Italian, Dutch, and Polish.

Alarm management

The AutoDome 300 Series takes alarm handling to new levels of flexibility and power.

Inputs and outputs

The AutoDome 300 Series can handle seven alarm inputs: two of these are analog inputs that can be programmed for EOLR (End-of-Line Resistor) supervision whenever true security applications require it. These inputs enable the dome to "sense" if the contact is opened or closed *and* whether the wire has been tampered with (either by being cut or shorted). In addition, the AutoDome 300 Series supports four outputs: one relay rated at two amps and three additional open collectors for driving external devices. Each can be programmed individually.

Advanced alarm control

This new concept in flexibility goes beyond simple alarm handling. Advanced alarm control uses sophisticated rules-based logic to determine how to manage alarms. In its most basic form, a "rule" could define which input(s) should activate which output(s). In a more complex form, inputs and outputs can be combined with pre-defined or user-specified keyboard commands to perform advanced dome functions. There is virtually no limit to the number of combinations that you can program, making the standard software in the dome ready for any application.

Superior privacy masking

The AutoDome 300 Series allows for a total of 24 individual privacy masks, with up to eight displayed in the same scene. Unlike conventional privacy masks, these can each be programmed with three, four, or even five corners to cover more complex shapes. As the camera is zoomed each mask changes size smoothly and quickly ensuring that the covered object cannot be seen. You also have a choice of colors: black, white, and blurred. Blurred comes in handy when privacy is an issue, but determining the presence of motion is still required.

Optional hybrid analog/IP operation

AutoDomes equipped with the optional TCP/IP Communications Module use an advanced H.264 encoder to create DVD-quality streaming video across a local or a wide area network, and can simultaneously stream CVBS video via coaxial cabling to support existing analog equipment. Network video streams are sent over IP networks and can be viewed with the Bosch Divar XF Digital Video Recorder, or on a PC running VIDOS video management software. Alternatively, a Bosch IP video decoder can be used to display the video on an analog CVBS or VGA monitor. For maximum accessibility, the video can be viewed using a web browser.

Tri-streaming video

Bosch's innovative tri-streaming feature enables AutoDomes equipped with the optional IP communications module to generate independent streams simultaneously. This feature allows you to stream high-quality images for live viewing while recording at a reduced frame rate, and at the same time, stream images to a remote PDA device.

Unsurpassed reliability

All housings feature recessed screws and latches for increased tamper resistance.

AutoDome pendant housings (indoor and outdoor) are rated to provide IP 66 protection. In addition, the pendant housings come equipped with a low-impact, high-resolution acrylic bubble for enhanced image clarity.

AutoDome in-ceiling housings provide IP 54 protection and are rated IK 8 (IEC 62262). These housings feature an impact-resistant polycarbonate Rugged Bubble to protect your camera from vandalism. The Rugged Bubble can withstand impacts equivalent to a 4.5 kg (10 lb) weight dropped from a height of 3 m (10 ft).

Outdoor EnviroDome housings provide an operating temperature range down to -40°C (-40°F). The optional “XT” extreme temperature kit allows an AutoDome to operate in temperatures down to -60°C (-76°F), ensuring reliable operation in even the harshest environments.

The Pressurized Environmental Housing is rated to provide IP 67 protection for a VG4 Series AutoDome® Modular Camera System from the elements, both natural and manmade. It is the ideal surveillance solution for applications that require frequent wash-down, including traffic, transit, bridges, tunnels and coastal installations where salt, moisture, dust, insects and fumes threaten the long-term operation of the camera.

Ease of installation and servicing

Bosch’s innovative software, the Configuration Tool for Imaging Devices (CTFID), allows operators or technicians to control the PTZ, change camera settings, and even update firmware from virtually anywhere without need for additional wiring. For the new Ethernet versions, an embedded Web server lets the installer access all the user settings, make camera adjustments, and update firmware via a standard Web browser.

AutoDome’s innovative design simplifies installation and servicing. AutoDome reduces maintenance costs because you can replace individual modules instead of entire camera assemblies. Simply pop out the old module and slide in the new: it’s almost as easy as changing a light bulb. All tethers have been replaced with hinges, making installation and servicing safer and easier. You can even access the built-in power supply without taking down the dome.

The AutoDome 300 Series has advanced built-in diagnostics to simplify service and minimize downtime. Using the On Screen Display (OSD), a technician can quickly and easily check critical parameters (such as internal temperature and input voltage level) to verify that the dome is functioning within acceptable operating limits. If video is not present, a local inspection of three diagnostic LEDs at the camera site can identify the presence of video and control data.

Feature Comparison Matrix

The following table provides an overview of the AutoDome camera family and its available features:

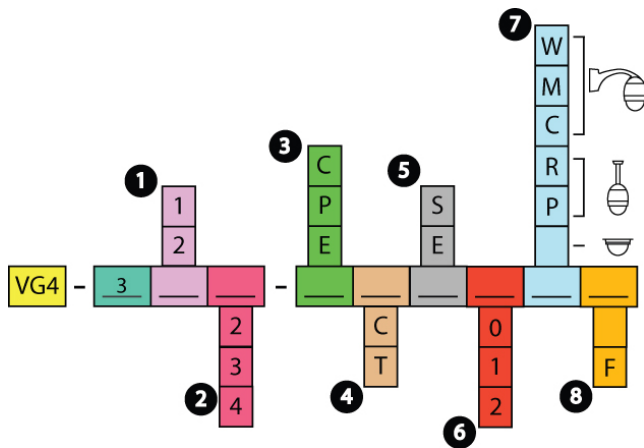
Module/Feature	AutoDome 300 Series	AutoDome 200 Series	AutoDome 100 Series	AutoDome 000 Series
Interchangeable Modules	■	■	■	■
High-Speed PTZ		■	■	■
Power Storm		■	■	■
Power Test		■	■	■
Event Foc			■	■
Weatherproof			■	■
High-Resolution Camera	■	■	■	■
Day/Night Operation	■		■	■
IR Service	■		■	■
Secure/Control Security	■		■	■
IP/Coax Transmission	■	■	■	■
Remote Access/Connectivity	■	■	■	■
Wireless Remote Configuration*	■	■	■	■
Cable Compression			■	■
Hot Swap Camera/Module	■	■	■	■
Advanced, Impact-Resistant Housing	■	■	■	■
Advanced Features				
Weather & Motion Tracking				■
Object Motion Detection				■
Object Identification				■
Priority/Background Sector Scanning			■	■
Advanced Motion Control			■	■

*Compatible over Coax and UTP transmission only. Remote configuration over IP via web interface.

Certifications and Approvals

Region	Certification	
Europe	CE	VG4-1ab-cdefgh, VG4-2ab-cdefgh, VG4-3ab-cdefgh, VG4-5ab-cdefgh, VG4-A-PAxx, VG4-A-PSUxx EMC Directive, Low-Voltage Directive
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4 and EN50121-4	
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards	

Installation/Configuration Notes

**1 Video Format**

- 1 PTZ PAL
- 2 PTZ NTSC

2 Camera Type

- 2 18x Day/Night PTZ
- 3 26x Day/Night PTZ
- 4 36x Day/Night PTZ

3 Enclosure

- C In-ceiling²
- P Indoor Pendant
- E Outdoor Pendant

4 Bubble

- C Clear
- T Tinted

5 Communications

- S Standard Analog (Coax/UTP)
- E Ethernet (TCP/IP)

1 No transformer included. Customer must supply an approved 24 VAC limited power supply (VG4-A-PSUx or equivalent).

2 Recessed in-ceiling housing units do not require kit options for reference numbers 6, 7, or 8.

3 Fiber optic option is multi-mode with biphase. Requires LTC 4629 at the system.

4 Roof mount mounts to vertical Parapet. For flat roof installation, order an additional LTC 9230/01 Flat Roof Adapter Plate.

5 Optional trim skirt available as a separate purchase.

6 Power⁵

- 0 24 VAC¹
- 1 120 VAC
- 2 230 VAC

7 Mount

- W Wall
- M Mast
- C Corner
- R Roof⁴
- P Pipe

8 Fiber Optics

- _ No Fiber
- F Fiber³

Technical Specifications

Camera 36x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	36x Zoom (3.4 – 122.4 mm) F1.6 to F4.5
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	1.7° to 57.8°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (~120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	540 TVL (NTSC, PAL) typical
Sensitivity (typical) ⁶	30 IRE 50 IRE

Day Mode

SensUp Off	0.66 lx	1.4 lx
SensUp On (15x)	0.033 lx	0.083 lx

Night Mode

SensUp Off	0.166 lx	0.33 lx
SensUp On (15x)	0.0065 lx	0.0164 lx

Electronic Shutter Speed (AES)	1 to 1/10,000
SNR	>50 dB
White Balance	2000 K to 10,000 K

6 F1.6, 1/60 (1/50) shutter, max AGC.

Camera 26x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	26x Zoom (3.5–91.0 mm) F1.6 to F3.8
Focus	Automatic, with manual override
Iris	Automatic, with manual override
Field of View	2.3° to 55°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (~120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical
Sensitivity (typical) ⁷	30 IRE 50 IRE

Day Mode

SensUp Off	0.5 lx	1.0 lx
SensUp On (15x)	0.0052 lx	0.013 lx

Night Mode		
SensUp Off	0.10 lx	0.26 lx
SensUp On (15x)	0.0013 lx	0.0026 lx
Electronic Shutter Speed (AES)	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	
7 F1.6, 1/60 (1/50) shutter, max AGC.		

Camera 18x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)	
Lens	18x Zoom (4.1–73.8 mm) F1.4 to F3.0	
Focus	Automatic with manual override	
Iris	Automatic with manual override	
Field of View	2.7° to 48°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit)	
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Digital Zoom	12x	
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical	
Sensitivity (typical)⁸	30 IRE	50 IRE

Day Mode		
SensUp Off	0.4 lx	0.7 lx
SensUp On (15x)	0.0041 lx	0.0082 lx
Night Mode		
SensUp Off	0.05 lx	0.17 lx
SensUp On (15x)	0.0007 lx	0.0013 lx
Electronic Shutter Speed (AES)	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	
8 F1.4, 1/60 (1/50) shutter, max AGC.		

Mechanical/Electrical

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Weight	2.66 kg (5.86 lb)	2.88 kg (6.3 lb)	3.32 kg (7.3 lb)
Pan Range	360° cont.	360° cont.	360° cont.
Tilt Angle	1° above horizon	18° above horizon	18° above horizon
Variable Speed	0.1°/s-120°/s	0.1°/s-120°/s	0.1°/s-120°/s
Pre-position Speed	Pan: 360°/s Tilt: 100°/s	Pan: 360°/s Tilt: 100°/s	Pan: 360°/s Tilt: 100°/s
Preset Accuracy	± 0.1° typ.	± 0.1° typ.	± 0.1° typ.

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Power	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz

Power Draw: (typ)

Analog Models	10 W	10 W	46 W ⁹
Ethernet Models	14 W	14 W	50 W ⁹

9 Add 16 W if using VG4-SHTR-XT kit.

Surge Suppression

Protection on Video	Peak current 10 kA (Gas Tube Arrester), peak power 1000 W (10/1000 µ)
Protection on RS-232/485, Biphase	Peak current 10 A, peak power 300 W (8/20 µ)
Protection on Alarm Inputs	Peak current 17 A, peak power 300 W (8/20 µ)
Protection on Alarm Outputs	Peak current 2 A, peak power 300 W (8/20 µ)
Protection on Relay Outputs	Peak current 7.3 A, peak power 600 W (10/1000 µ)
Protection on Power Input (Dome)	Peak current 7.3 A, peak power 600 W (10/1000 µ)
Protection on Power Output (Arm Power Supply)	Peak current 21.4 A, peak power 1500 W (10/1000 µ)

Environmental

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Design Rating	Plenum Rated	IP66	IP66
Operating Temp.	–10°C to 50°C (14°F to 122°F)	–10°C to 50°C (14°F to 122°F)	–40°C to 50°C (–40°F to 122°F)
Storage Temp.	–40°C to 60°C (–40°F to 140°F)	–40°C to 60°C (–40°F to 140°F)	–40°C to 60°C (–40°F to 140°F)
Humidity	0% to 90% relative, non-condensing	0% to 90% relative, non-condensing	0% to 100% relative, condensing
Protection	IP 66, IK 8 (IEC 62262)		

Miscellaneous

Sectors/Titling	16 independent sectors with 20-character titles/sector
Camera Setup/Control	Biphase, RS-232, RS-485, Bilinx ¹⁰ (coax)
Communications Protocols	Biphase, Bilinx ¹⁰ , Pelco P, and Pelco D
Pre-positions	99, each with 20-character titles
Guard Tours	Two (2) types of tours: <ul style="list-style-type: none"> Recorded tours - two (2), total duration 15 minutes Preset tour - one (1), consisting of up to 99 scenes, consecutively and (1) customized up to 99 scenes
Supported Languages	Czech, Dutch, English, French, German, Italian, Polish, Portuguese, Russian and Spanish

10 Bilinx not available on Ethernet models.

Cable Compensation

Max Distance	With Pre-comp OFF	With Pre-comp ON
RG-59/U	1000 ft (300 m)	2000 ft (600 m)
RG-6/U	1500 ft (450 m)	3000 ft (900 m)
RG-11/U	2000 ft (600 m)	4000 ft (1200 m)
Cat5/UTP (Passive receiver)	750 ft (225 m)	1500 ft (450 m)

User Connections

Power (Camera)	21-30 VAC, 50/60 Hz
Power (Heater)	21-30 VAC, 50/60 Hz
Biphase ±	Control Data
Audio Line In ¹¹	9 K Ohm typ, 5.5 Vp-p max
RS-232 RX/TX or RS-485 ± - optional control data (dip switch selectable)	
Video	BNC/UTP ¹²
EOLR Alarm Inputs (2)	Programmable for "normally open", "normally closed", "normal- ly open-supervised", "normally closed-super- vised"
Alarm Inputs (5)	Programmable for "normally open" or "normally closed"
Relay Out (1)	Dry contact output rating: 2 A @ 30 VAC
Open Collector Outputs (3)	32VDC@150 ma max

¹¹ With Ethernet models, the biphase ± can optionally be used as the audio line in connector.

¹² Ethernet models have no UTP analog output only BNC (coax).

Mounts/Accessories

Pendant Mounts

Arm Mounts

Wall Arm (No Transformer)	VG4-A-PA0
Wall Arm (120/230 VAC Transformer)	VG4-A-PA1 / VG4-A-PA2
Wall Arm (120/230 VAC Transformer and Fiber Optics)	VG4-A-PA1F / VG4-A-PA2F

Pendant Mounts

Optional Mounting Plates for Arm Mounts

Corner Mounting Plate	VG4-A-9542
Mast (Pole) Mounting Plate	VG4-A-9541

Pipe Mounts

Pipe Mount Cap	VG4-A-9543
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Roof Mounts

Roof (Parapet) Mount	VG4-A-9230
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Optional Mounting Plates for Roof Mounts

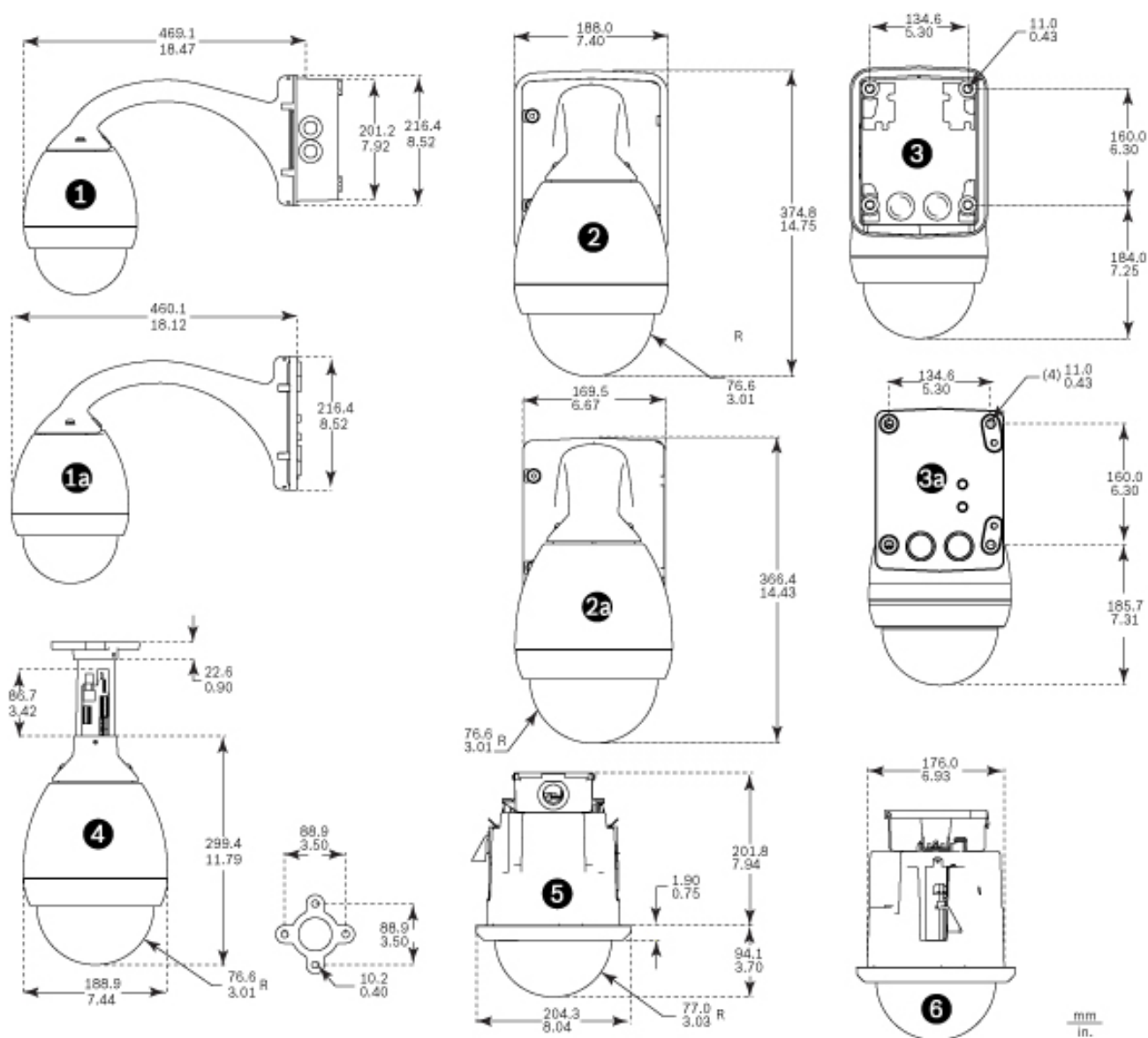
Flat Roof Adapter for Parapet Mount	LTC 9230/01
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Power Supplies

Outdoor Power Supply Box (120/230 VAC Transformer)	VG4-A-PSU1 / VG4-A-PSU2
Outdoor Power Supply Box (120/230 VAC Transformer and Fiber Op- tics)	VG4-A-PSU1F / VG4-A-PSU2F
Extended temp heater module extends temperature range to -60°C (-76°F) for EnviroDome® only	VG4-SHTR-Xt

Fiber Optic Models

Optical Fiber Compatibility	50/125 mm, 62.5/125 mm, low loss multimode glass fiber, rated for a minimum system band- width of 20 MHz (video 850 nm/Control 1300 nm)
Max Distance	4 km (2.5 miles)



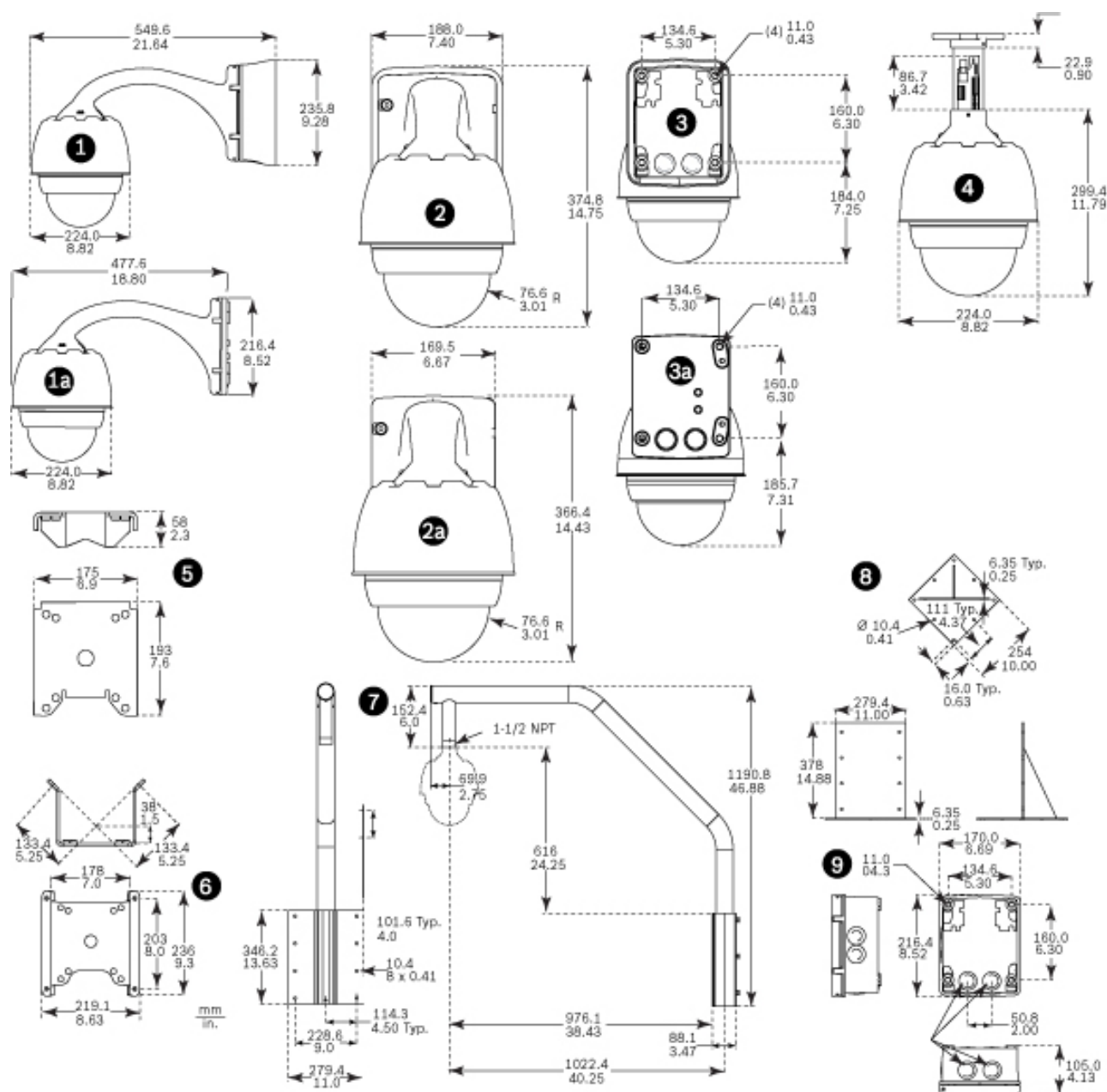
Indoor System Dimensions

Reference Description

1	Wall Mount – Side with power supply and trim skirt removed
1a	Wall/Mast Mount – Side with VG4-ARMPLATE
2	Wall Mount – Front with power supply and trim skirt
2a	Wall Mount – Front with power supply
3	Wall Mount – Back with power supply and trim skirt

Reference Description

3a	Wall Mount – Back with power supply
4	Pipe Mount
5	In-ceiling Mount – Front
6	In-ceiling Mount – Side



Outdoor System Dimensions

Reference Description

- | | |
|----|---|
| 1 | Wall Mount – Side with power supply and trim skirt |
| 1a | Wall/Mast Mount – Side with VG4-ARMPLATE |
| 2 | Wall Mount – Front with power supply and trim skirt |
| 2a | Wall Mount – Front with power supply |
| 3 | Wall Mount – Back with power supply and trim skirt |
| 3a | Wall Mount – Back with power supply |
| 4 | Pipe Mount |
| 5 | Mast Mount |
| 6 | Corner Mount |
| 7 | Roof Mount |
| 8 | Roof Mount Adapter |
| 9 | Power Supply for Pipe and Roof Mounts |

AutoDome 500i Series Intelligent PTZ Camera System



Features

- ▶ **Fully interchangeable CPUs, cameras, housings, communications, and mounts**
- ▶ **Choice of 540 TVL 36x day/night camera with 128x wide dynamic range or 26x and 18x day/night cameras**
- ▶ **AutoTrack II automated motion tracking**
- ▶ **Video motion detection**
- ▶ **Optional IP connectivity using H.264 and JPEG**
- ▶ **Advanced privacy masking**
- ▶ **Advanced alarm control with rules engine**
- ▶ **UTP transmission standard on all analog models**
- ▶ **Cable compensation extends cabling distances**

Bosch's AutoDome modular camera system is a revolutionary new concept in dome cameras. More than just a series of cameras, it's a dome platform built around a system of intelligent, interchangeable modules that allow you to update camera functionality quickly and cost-effectively. Using common components lets you install a basic camera system today and migrate to a more advanced version tomorrow – without having to replace the entire dome, thus protecting your initial investment.

Interchangeable modules

The entire AutoDome system is based on five interchangeable modules: the CPU, camera, housing, communications, and power supply. Simply swap one of AutoDome's interchangeable modules and quickly upgrade from analog to IP, color to day/night, or add motion detection, image stabilization, and AutoTrack.

Never before have you had the ability to adapt a security system to your changing needs this quickly or inexpensively.

By using the same housing components, all installations have a consistent look, and observers have no idea which type of camera (if any) is watching over them. This unique, modular design also gives you the flexibility to move cameras between different housings when special coverage is needed, or as site plan requirements change. For example, an 18x PTZ camera over a specific area could easily be "hot-swapped" to a 26x or 36x day/night without removing the power. AutoDome's Ethernet communications module allows you to add IP functionality while maintaining connectivity to existing analog inputs and outputs.

500i Series highlights

AutoDome 500i Series adds real intelligence to your video surveillance applications. Equipped with AutoTrack II the latest version of Bosch's award-winning motion tracking software, built-in image stabilization, motion detection, and a sophisticated alarm handling "rules" engine, the AutoDome 500i Series incorporates advanced, intelligent video features unmatched by any other camera system.

The AutoDome 500i Series supports a variety of standard and optional video and data transmission methods, including Bilinx (over coax and UTP), fiber, and even TCP/IP over Ethernet. Remote control, configuration, and firmware updates can also be performed over these cables, offering you unparalleled control of your cameras. Cable compensation provides extended coaxial and UTP distance runs while preventing the image quality degradation caused by signal losses from long cable lengths.

The optional IP Communications Module has hybrid functionality to protect your current analog technology investment while providing a clear and stable migration path to fully digital, IP-based solutions. This allows you to move to IP video at your own pace – all at once or one camera at a time. And since all AutoDome modules are completely interchangeable, there is no need to replace expensive components (e.g., cameras) or labor-intensive components (e.g., mounts and housings).

Functions

The following are some of the features that make the AutoDome 500i Series the most flexible PTZ dome camera systems in the security industry.

High-performance PTZ day/night cameras

Image control and quality are integral aspects of any PTZ dome system, and the AutoDome delivers. The 500i Series is available with a choice of 18x, 26x, and the industry-leading 36x optical zoom lens, and all 500i Series systems offer a full 12x digital zoom. The 18x and 26x cameras provide 470 TVL (NTSC) or 480 TVL (PAL), and the 36x camera provides a full 540 TVL of horizontal resolution for

outstanding clarity and image detail. The 36x camera also incorporates technology that dramatically improves the dynamic range by 128 times. Also known as WDR (wide-dynamic range), it results in clear image reproduction in extreme high-contrast environments.

The AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera) features ensure optimal control.

Day/night capabilities and outstanding sensitivity make 500i Series cameras exceptional performers in all lighting conditions. In low light, these cameras automatically switch from color to monochrome by removing the IR filter to boost the infrared illumination sensitivity, while maintaining superior image quality. For operation in the darkest conditions, the SensUp control feature automatically reduces the shutter speed to as little as one second. This increases sensitivity by more than 50 times.

With super-quick, 360° per-second pan and tilt speeds, the AutoDome 500i Series outperforms other domes in its class. The 500i Series supports 99 pre-positions and two styles of Guard Tours: Preset and Record/Playback. The preset tour has capability for up to 99 pre-positions with a configurable dwell time between pre-positions, and can be customized as to the order and frequency each preset is visited. AutoDome 500i Series also provides support for two recorded tours, which have a combined duration of 15 minutes of movements. These are recorded macros of an operator's movements, including pan, tilt, and zoom activities, and can be played back in a continuous manner.

Supported menu languages include: English, French, German, Spanish, Portuguese, Italian, Dutch, and Polish.

AutoTrack II

Bosch introduced the industry's first automated motion tracking system, and now we've made this award-winning technology even better. The AutoDome 500i Series contains an advanced DSP that provides real-time video processing for incredibly smooth object tracking.

AutoTrack II utilizes Bosch's unique "virtual masking" technology. These "invisible" masks are created to act just like privacy masks, except that only the AutoTrack can see them – and it knows to ignore any motion behind them. This enables the AutoTrack to ignore extraneous background motion, such as a tree blowing in the wind, making it ideal for both indoor and outdoor applications.

Video motion detection (VMD)

With AutoDome, you can create a "region of interest" within a preset position where motion is to be detected. The AutoDome 500i Series supports a total of 10 individual regions of interest (one per pre-position). VMD also takes advantage of virtual masking to ignore areas of unwanted motion.

Image Stabilization

As PTZ cameras continue to improve their optical zoom capabilities, image stabilization becomes critical to eliminate movement caused by unstable camera mounts. A mere quarter-inch of movement of the camera mount can shift the field of view by more than 20 feet when the camera is zoomed to a high value. This can render images unusable.

Image stabilization algorithms included with the AutoDome 500i Series reduces camera shake in both the vertical and horizontal axis, resulting in exceptional image clarity (pixel displacement up to +/- 10% for frequencies up to 10 Hz). Bosch's unique image stabilization solution does not reduce camera sensitivity, unlike competitive systems.

Alarm management

The AutoDome 500i Series takes alarm handling to new levels of flexibility and power.

Inputs and outputs

The AutoDome 500i Series can handle seven alarm inputs, two of which are analog inputs that can be programmed for EOLR (End-of-Line Resistor) supervision whenever true security applications require it. These inputs enable the dome to "sense" if the contact is opened or closed and whether the wire has been tampered with (either by being cut or shorted). In addition, the AutoDome 500i Series supports four outputs: one relay rated at two amps and three additional open collectors for driving external devices. Each can be programmed individually.

Advanced alarm control

This new concept in flexibility goes beyond simple alarm handling. Advanced alarm control uses sophisticated rules-based logic to determine how to manage alarms. In its most basic form, a "rule" could define which input(s) should activate which output(s). In a more complex form, inputs and outputs can be combined with pre-defined or user-specified keyboard commands to perform advanced dome functions. There is virtually no limit to the number of combinations that you can program, making the standard software in the dome ready for any application.

Superior privacy masking

The AutoDome 500i Series allows for a total of 24 individual privacy masks, with up to eight displayed in the same scene. Unlike conventional privacy masks, these can each be programmed with three, four, or even five corners to cover more complex shapes. Each mask changes size and shape smoothly and quickly – ensuring that the covered object cannot be seen. You also have a choice of colors: black, white, and blurred. Blurred comes in handy when privacy is an issue, but determining the presence of motion is still required.

Optional hybrid analog/IP operation

AutoDomes equipped with the optional TCP/IP Communications Module use an advanced H.264 encoder to create DVD-quality streaming video across a local or a wide area network, and can simultaneously stream CVBS video via coaxial cabling to support existing analog equipment. Network video streams are sent over IP networks and can be viewed with the Bosch Divar XF Digital Video Recorder, or on a PC running VIDOS video management software. Alternatively, a Bosch IP video decoder can be used to display the video on an analog CVBS or VGA monitor. For maximum accessibility, the video can be viewed using a web browser.

Tri-streaming video

Bosch's innovative tri-streaming feature enables AutoDomes equipped with the optional IP Communications Module to generate independent streams simultaneously. This feature allows you to stream high-quality images for live viewing while recording at a reduced frame rate, and at the same time, stream images to a remote PDA device.

Unsurpassed reliability

All housings feature recessed screws and latches for increased tamper resistance.

AutoDome pendant housings (indoor and outdoor) are rated to provide IP 66 protection. In addition, the pendant housings come equipped with a low-impact, high-resolution acrylic bubble for enhanced image clarity.

AutoDome in-ceiling housings provide IP 54 protection and are rated IK 8 (IEC 62262). These housings feature an impact-resistant polycarbonate Rugged Bubble to protect your camera from vandalism. The Rugged Bubble can withstand impacts equivalent to a 4.5 kg (10 lb) weight dropped from a height of 3 m (10 ft).

Outdoor EnviroDome housings provide an operating temperature range down to -40°C (-40°F). The optional "XT" extreme temperature kit allows an AutoDome to operate in temperatures down to -60°C (-76°F), ensuring reliable operation in even the harshest environments.

The Pressurized Environmental Housing is rated to provide IP 67 protection for a VG4 Series AutoDome® Modular Camera System from the elements, both natural and manmade. It is the ideal surveillance solution for applications that require frequent wash-down, including traffic, transit, bridges, tunnels and coastal installations where salt, moisture, dust, insects and fumes threaten the long-term operation of the camera.

Ease of installation and servicing

Bosch's innovative software, the Configuration Tool for Imaging Devices (CTFID), allows operators or technicians to control the PTZ, change camera settings, and even update firmware from virtually anywhere without need for additional wiring. For the new Ethernet versions, an embedded Web server lets the installer access all the user settings, make camera adjustments, and update firmware via a standard Web browser.

AutoDome's innovative design simplifies installation and servicing. AutoDome reduces maintenance costs because you can replace individual modules instead of entire camera assemblies. Simply pop out the old module and slide in the new: it's almost as easy as changing a light bulb. All tethers have been replaced with hinges, making installation and servicing safer and easier. You can even access the built-in power supply without taking down the dome.

The AutoDome 500i Series has advanced built-in diagnostics to simplify service and minimize downtime. Using the On Screen Display (OSD), a technician can quickly and easily check critical parameters (such as internal temperature and input voltage level) to verify that the dome is functioning within acceptable operating limits. If video is not present, a local inspection of three diagnostic LEDs at the camera site can identify the presence of video and control data.

Feature Comparison Matrix

The following table provides an overview of the AutoDome camera family and its available features:

Module/Feature	AutoDome 100 Series	AutoDome 200 Series	AutoDome 300 Series	AutoDome 500 Series
Interchangeable Modules	■	■	■	■
High-Speed PTE		■	■	■
Power Storm		■	■	■
Power Test		■	■	■
Sound Test			■	■
Alarm Inputs			■	■
High-Resolution Camera	■	■	■	■
Day/Night Operation	■		■	■
IP Service	■		■	■
Sanitized/Extended Sensitivity	■		■	■
IP Coax Transmission	■	■	■	■
Remote Image/PTZ Connectivity	■	■	■	■
Alarm Remote Configuration*	■	■	■	■
Circle Compression			■	■
Hot Swap Camera Module	■	■	■	■
Approved, Impact-Resistant Mount	■	■	■	■
Advanced Features				
Anti-Flicker Motion Tracking				■
Video Motion Detection				■
Image Enhancement				■
Privacy/Blindspot Sector Masking			■	■
Alarm/Status Control			■	■

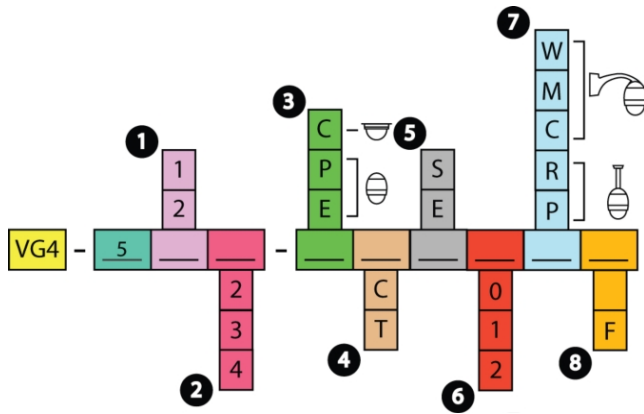
*Compatible over Coax and UTP transmission only. Remote configuration over IP via web interface.

Certifications and Approvals

Region	Certification
Europe	CE VG4-1ab-cdefgh, VG4-2ab-cdefgh, VG4-3ab-cdefgh, VG4-5ab-cdefgh, VG4-A-PAxx, VG4-A-PSUxx EMC Directive, Low-Voltage Directive

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4 and EN50121-4
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Ordering Information

1 Video Format

- 1 PTZ PAL
- 2 PTZ NTSC

2 Camera Type

- 2 18x Day/Night PTZ
- 3 26x Day/Night PTZ
- 4 36x Day/Night PTZ

3 Enclosure

- C In-ceiling²
- P Indoor Pendant
- E Outdoor Pendant

4 Bubble

- C Clear
- T Tinted

5 Communications

- S Standard Analog (Coax/UTP)
- E Ethernet (TCP/IP)

6 Power⁵

- 0 24 VAC¹
- 1 120 VAC
- 2 230 VAC

7 Mount

- W Wall
- M Mast
- C Corner
- R Roof⁴
- P Pipe
- No Mount²

8 Fiber Optics

- No Fiber
- F Fiber³

1 No transformer included. Customer must supply an approved 24 VAC limited power supply (VG4-A-PSUx or equivalent).

2 Recessed in-ceiling housing units do not require kit options for reference numbers 6, 7, or 8.

3 Fiber optic option is multi-mode with biphase. Requires LTC 4629 at the system.

4 Roof mount mounts to vertical Parapet. For flat roof installation, order an additional LTC 9230/01 Flat Roof Adapter Plate.

5 Optional trim skirt available as a separate purchase.

Technical Specifications

Camera 36x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	36x Zoom (3.4 – 122.4 mm) F1.6 to F4.5
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	1.7° to 57.8°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	540 TVL (NTSC, PAL) typical
Sensitivity (typical)⁶	30 IRE 50 IRE

Day Mode

SensUp Off	0.66 lx	1.4 lx
SensUp On (1/4) (15x)	0.033 lx	0.083 lx

Night Mode

SensUp Off	0.166 lx	0.33 lx
SensUp On (1/4) (15x)	0.0065 lx	0.0164 lx

Electronic Shutter Speed	1 to 1/10,000
SNR	>50 dB

White Balance	2000 K to 10,000 K
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6 F1.6, 1/60 (1/50) shutter, max AGC.

Camera 26x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	26x Zoom (3.5 – 91.0 mm) F1.6 to F3.8
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.3° to 55°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical
Sensitivity (typical)⁷	30 IRE 50 IRE

Day Mode

SensUp Off	0.5 lx	1.0 lx
SensUp On (15x)	0.0052 lx	.013 lx

Night Mode

SensUp Off	0.10 lx	0.26 lx
SensUp On (15x)	0.0013 lx	0.0026 lx

Electronic Shutter Speed	1 to 1/10,000
SNR	>50 dB
White Balance	2000 K to 10,000 K
7 F1.6, 1/60 (1/50) shutter, max AGC.	

18x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	18x Zoom (4.1 – 73.8 mm) F1.4 to F3.0
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.7° to 48°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical

Sensitivity (typical)⁸ **30 IRE** **50 IRE**

Day Mode

SensUp Off	0.4 lx	0.7 lx
SensUp On (15x)	0.0041 lx	0.0082 lx

Night Mode

SensUp Off	0.05 lx	0.17 lx
SensUp On (15x)	0.0007 lx	0.0013 lx

Electronic Shutter Speed	1 to 1/10,000
SNR	>50 dB
White Balance	2000 K to 10,000 K

8 F1.4, 1/60 (1/50) shutter, max AGC.

Mechanical/Electrical

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Weight	2.66 kg (5.86 lb)	2.88 kg (6.3 lb)	3.32 kg (7.3 lb)
Pan Range	360° cont.	360° cont.	360° cont.
Tilt Angle	1° above horizon	18° above horizon	18° above horizon
Variable Speed	0.1°/s-120°/s	0.1°/s-120°/s	0.1°/s-120°/s
Pre-position Speed	Pan: 360°/s Tilt: 100°/s	Pan: 360°/s Tilt: 100°/s	Pan: 360°/s Tilt: 100°/s
Preset Accuracy	± 0.1° typ.	± 0.1° typ.	± 0.1° typ.
Power	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz	21-30 VAC 50/60 Hz

Power Draw: (typ)

Analog Models	15 W	15 W	51 W ⁹
Ethernet Models	19 W	19 W	55 W ⁹

9 Add 16 W if using VG4-SHTR-XT kit.

Surge Suppression

Protection on Video	Peak current 10 kA (Gas Tube Arrester), peak power 1000 W (10/1000 µ)
Protection on RS-232/485, Biphase	Peak current 10 A, peak power 300 W (8/20 µ)
Protection on Alarm Inputs	Peak current 17 A, peak power 300 W (8/20 µ)
Protection on Alarm Outputs	Peak current 2 A, peak power 300 W (8/20 µ)
Protection on Relay Outputs	Peak current 7.3 A, peak power 600 W (10/1000 µ)
Protection on Power Input (Dome)	Peak current 7.3 A, peak power 600 W (10/1000 µ)
Protection on Power Output (Arm Power Supply)	Peak current 21.4 A, peak power 1500 W (10/1000 µ)

Environmental

Model	In-Ceiling	Indoor Pendant	EnviroDome®
Design Rating	Plenum Rated	IP66	IP66
Operating Temp.	-10°C to 40°C (14°F to 104°F)	-10°C to 40°C (14°F to 104°F)	-40°C to 50°C (-40°F to 122°F)
Storage Temp.	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)
Humidity	0% to 90% relative, non-condensing	0% to 90% relative, non-condensing	0% to 100% relative, condensing

Miscellaneous

Sectors/Titling	16 independent sectors with 20-character titles/sector
Camera Setup/Control	Biphase, RS-232, RS-485, Bilinx ¹⁰ (coax)
Communications Protocols	Biphase, Bilinx ¹⁰ , Pelco P, and Pelco D
Pre-positions	99, each with 20-character titles
Guard Tours	Two (2) types of tours: <ul style="list-style-type: none"> Recorded tours - two (2), total duration 15 minutes Preset tour - one (1), consisting of up to 99 scenes, consecutively and (1) customized up to 99 scenes

Supported Languages	Czech, Dutch, English, French, German, Italian, Polish, Portuguese, Russian and Spanish
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10 Bilinx not available on Ethernet models.

Cable Compensation

Max Distance	With Pre-comp OFF	With Pre-comp ON
RG-59/U	1000 ft (300 m)	2000 ft (600 m)
RG-6/U	1500 ft (450 m)	3000 ft (900 m)
RG-11/U	2000 ft (600 m)	4000 ft (1200 m)
Cat 5/UTP (Passive receiver)	750 ft (225 m)	1500 ft (450 m)

User Connections

Power (Camera)	21-30 VAC, 50/60 Hz
Power (Heater)	21-30 VAC, 50/60 Hz
Biphase ±	Control Data
Audio Line In ¹¹	9 K Ohm typ, 5.5 Vp-p max
RS-232 RX/TX or RS-485 ± - optional control data (dip switch selectable)	
Video	BNC/UTP ¹²
EOLR Alarm Inputs (2)	Programmable for "normally open", "normally closed", "normally open-supervised", "normally closed-supervised"
Alarm Inputs (5)	Programmable for "normally open" or "normally closed"
Relay Out (1)	Dry contact output rating: 2 A @ 30 VAC
Open Collector Outputs (3)	32VDC@150 ma max

¹¹ With Ethernet models, the biphase ± can optionally be used as the audio line in connector.

¹² Ethernet models have no UTP analog output only BNC (coax).

Mounts/Accessories**Pendant Arm Mounts**

Wall Arm (No Transformer)	VG4-A-PA0
Wall Arm (120/230 VAC Transformer)	VG4-A-PA1 / VG4-A-PA2
Wall Arm (120/230 VAC Transformer and Fiber Optics)	VG4-A-PA1F / VG4-A-PA2F

Optional Mounting Plates for Arm Mounts

Corner Mounting Plate	VG4-A-9542
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Pendant Arm Mounts

Mast (Pole) Mounting Plate	VG4-A-9541
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Pendant Pipe Mounts

Pipe Mount Cap	VG4-A-9543
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Pendant Roof Mounts

Roof (Parapet) Mount	VG4-A-9230
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Optional Mounting Plates for Roof Mounts

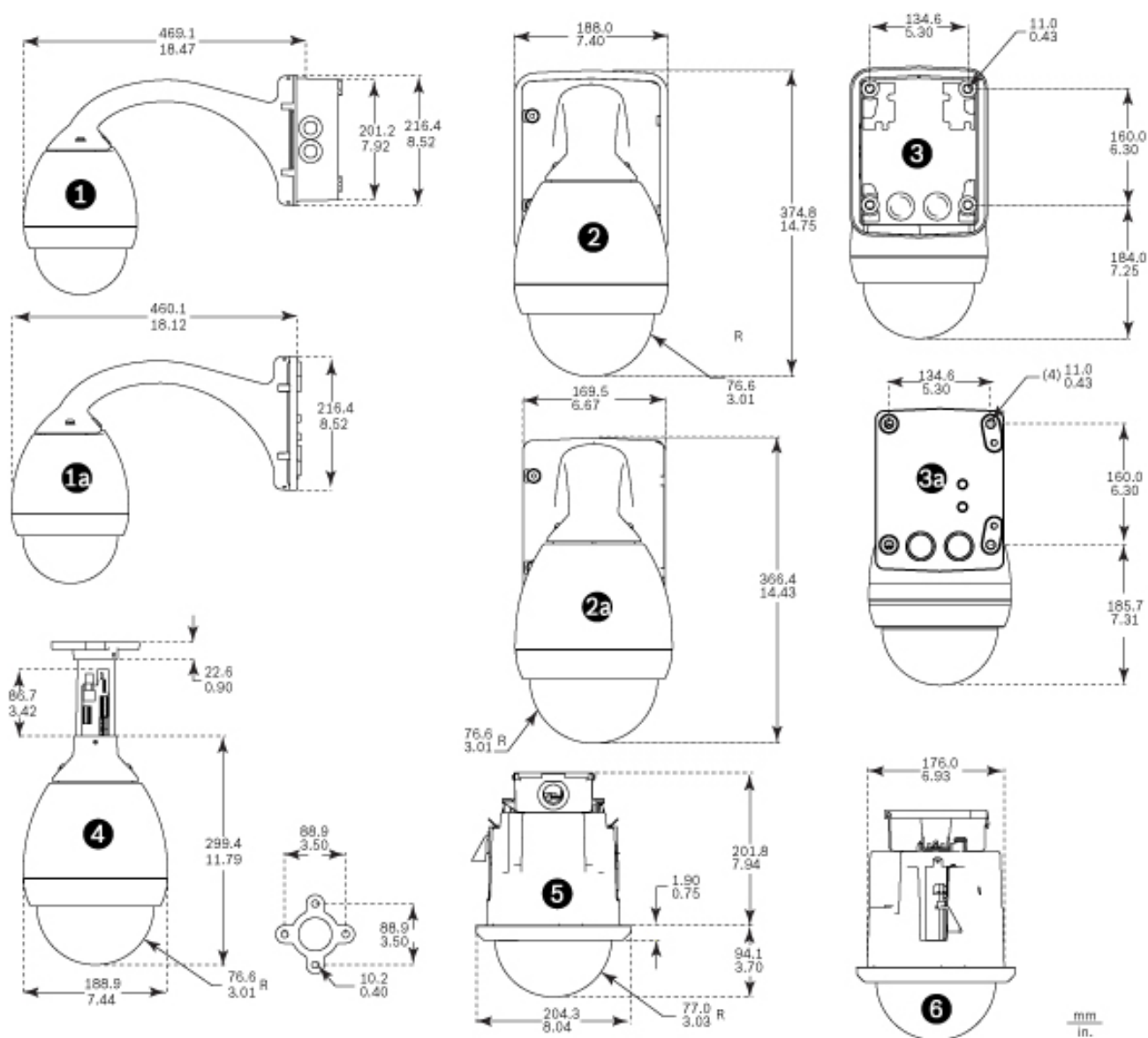
Flat Roof Adapter for Parapet Mount	LTC 9230/01
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Power Supplies

Outdoor Power Supply Box (120/230 VAC Transformer)	VG4-A-PSU1 / VG4-A-PSU2
Outdoor Power Supply Box (120/230 VAC Transformer and Fiber Optics)	VG4-A-PSU1F / VG4-A-PSU2F
Extended temp heater module extends temperature range to – 60°C (–76°F) for EnviroDome® only	VG4-SHTR-XT

Fiber Optic Models

Optical Fiber Compatibility	50/125 mm, 62.5/125 mm, low loss multimode glass fiber, rated for a minimum system bandwidth of 20 MHz (video 850 nm/Control 1300 nm)
Max Distance	4 km (2.5 miles)



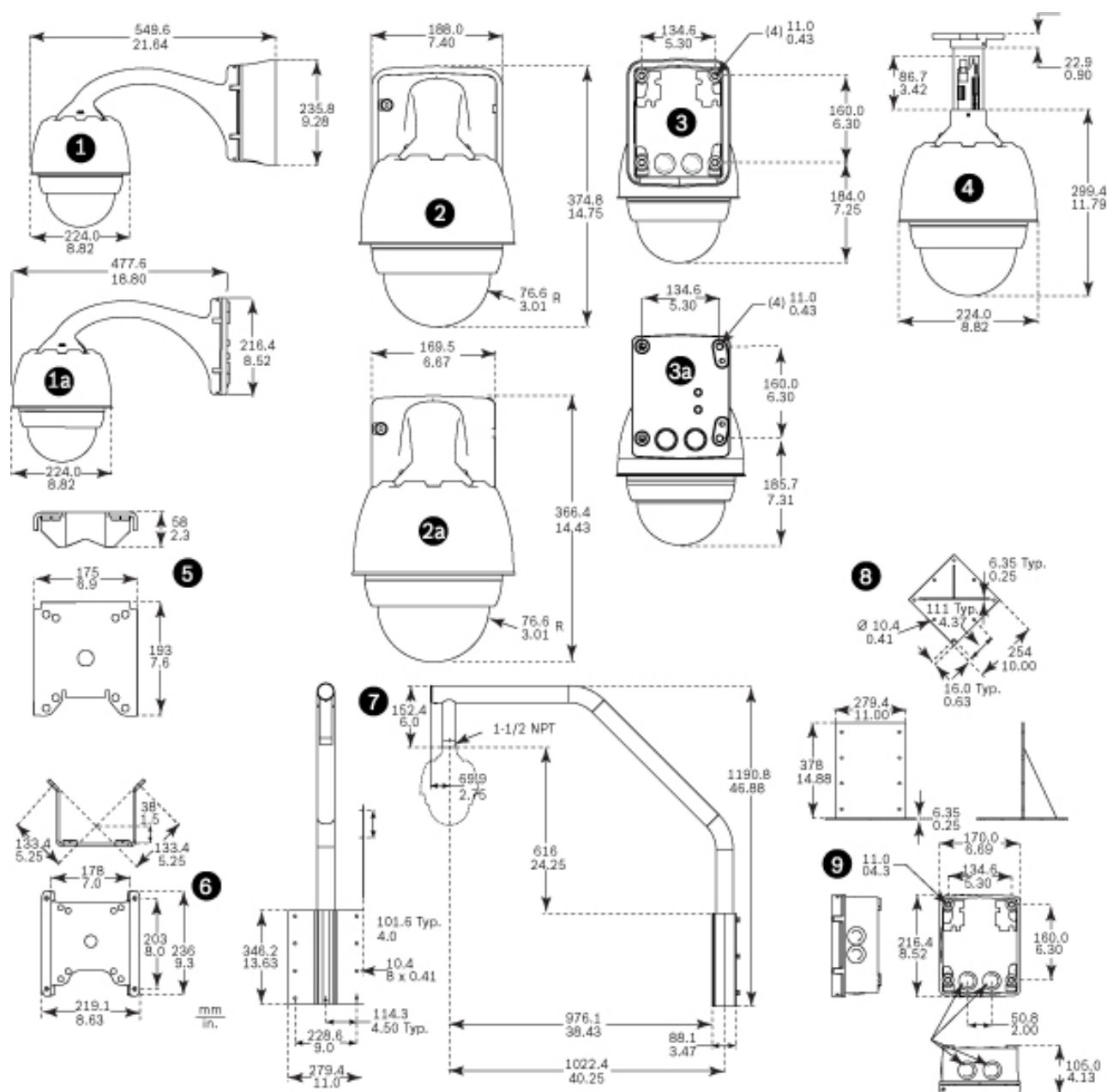
Indoor System Dimensions

Reference Description

1	Wall Mount – Side with power supply and trim skirt removed
1a	Wall/Mast Mount – Side with VG4-ARMPLATE
2	Wall Mount – Front with power supply and trim skirt
2a	Wall Mount – Front with power supply
3	Wall Mount – Back with power supply and trim skirt

Reference Description

3a	Wall Mount – Back with power supply
4	Pipe Mount
5	In-ceiling Mount – Front
6	In-ceiling Mount – Side



Outdoor System Dimensions

Reference Description

- | | |
|----|---|
| 1 | Wall Mount – Side with power supply and trim skirt |
| 1a | Wall/Mast Mount – Side with VG4-ARMPLATE |
| 2 | Wall Mount – Front with power supply and trim skirt |
| 2a | Wall Mount – Front with power supply |
| 3 | Wall Mount – Back with power supply and trim skirt |
| 3a | Wall Mount – Back with power supply |
| 4 | Pipe Mount |
| 5 | Mast Mount |
| 6 | Corner Mount |
| 7 | Roof Mount |
| 8 | Roof Mount Adapter |
| 9 | Power Supply for Pipe and Roof Mounts |

AutoDome Modules and Accessories



Features

- ▶ **Interchangeable Central Processing Unit (CPU), Camera, Housing and Communications modules**
- ▶ **Analog and Hybrid (analog/IP) Communications module options**
- ▶ **24 VAC, 120 VAC, and 230 VAC Power Supply Units with an optional Fiber Optic Module**
- ▶ **Roof, Pipe, and Pendant Arm Mounting Systems**
- ▶ **Analog and IP Fiber Optic Communication Units**
- ▶ **Rugged Polycarbonate and High-resolution Acrylic Bubble Options**

The Bosch AutoDome modular camera system is a revolutionary new concept in dome cameras. The entire AutoDome system is based on five interchangeable modules: the Central Processing Unit (CPU), camera, housing, communications, and power supply. Simply swap one of the AutoDome's interchangeable modules and quickly upgrade from analog to IP, color to day/night, or add motion detection, and AutoTrack. Never before have you had the ability to adapt a security system to your changing needs this quickly or inexpensively.

The Bosch AutoDome also features a selection of power supply and mounting accessories with clear or tinted bubbles.

Interchangeable modules

Five interchangeable modules allow you to update camera functionality quickly and cost-effectively. Using common components lets you install a basic camera system today and migrate to a more advanced version tomorrow – without having to replace the entire dome, thus protecting your initial investment.

By using the same housing components, all installations have a consistent look, and observers have no idea which type of camera (if any) is watching over them. This unique, modular design also gives you the flexibility to move cameras between different housings when special coverage is needed, or as site plan requirements change. For example, an 18x PTZ camera over a specific area could easily be “hot-swapped” to a 26x day/night without removing the power. AutoDome's Ethernet communications module allows you to add IP functionality while maintaining connectivity to existing analog inputs and outputs.

Functions

CPU Modules

100 Series CPU Module

The 100 Series CPU module provides fixed camera functionality, “hotswap” camera module replacement, pluggable communications module upgrades, and built-in surge suppression.

200 Series CPU Module

The 200 Series CPU module delivers fast 360° per second pan/tilt/zoom speeds, “hotswap” camera module replacement, pluggable communications module upgrades, built-in surge suppression, advanced diagnostics, and multilingual displays.

This module supports 64 pre-positions and a single preset tour. The preset tour has the capacity for up to 64 pre-positions with a configurable dwell time between pre-positions.

300 Series CPU Module

The 300 Series CPU module includes all of the features of the 200 Series plus additional presets and tours, cable compensation to extend cabling distances, and third-party protocol support. The Advanced Series also supports privacy masking and advanced alarm handling via a built-in rules engine.

500i Series CPU Module

The 500i Series CPU module includes all of the features of the 300 Series plus AutoTrackII motion tracking and video motion detection.

Camera Modules

High-performance Fixed Camera

The high-performance fixed cameras have a 1/3-inch interline CCD with Bosch's unique 15-bit Dinion digital imaging technology to deliver a 32-fold sensitivity improvement and a full 540 horizontal lines of resolution. Available in color and day/night versions, these cameras incorporate a number of features not found in other fixed dome cameras.

High-performance 18x PTZ Color Camera

The high-performance 18x PTZ color cameras have a 1/4-inch color CCD. With 470/480 TVL (NTSC/PAL) horizontal resolution and sensitivity down to 0.5 lux, this camera offers exceptional performance at an affordable price. A rugged motor with fewer moving parts mean that this camera uses less power and is extremely reliable, making it ideal for high-usage applications.

High-performance 18x and 26x PTZ Day/Night Camera

The high-performance PTZ day/night cameras have 470/480 TVL (NTSC/PAL) horizontal resolution. These cameras are available with either an 18x or a 26x optical zoom lens, and all cameras offer a full 12x digital zoom. The AutoScaling (proportional zoom) and AutoPivot (automatically rotates and flips the camera) features ensure optimal control.

High-performance 36x PTZ Day/Night Camera

Bosch offers the industry-leading 36x optical zoom lens with a full 12x digital zoom. The 36x camera provides a full 540 TVL of horizontal resolution for outstanding clarity and image detail. The 36x camera also incorporates an advanced backlight compensation technology that dramatically improves the dynamic range by 128 times, resulting in clear image reproduction in extreme high-contrast environments.

Housing Modules

All housings feature recessed screws and latches for increased tamper resistance.

AutoDome pendant housings (indoor and outdoor) are rated to provide IP 66 protection. In addition, the pendant housings come equipped with a low-impact, high-resolution acrylic bubble for enhanced image clarity.

AutoDome in-ceiling housings provide IP 54 protection and are rated IK 8 (IEC 62262). These housings feature an impact-resistant polycarbonate Rugged Bubble to protect your camera from vandalism. The Rugged Bubble can withstand impacts equivalent to a 4.5 kg (10 lb) weight dropped from a height of 3 m (10 ft).

Outdoor EnviroDome housings provide an operating temperature range down to -40°C (-40°F). The optional "XT" extreme temperature kit allows an AutoDome to operate in temperatures down to -60°C (-76°F), ensuring reliable operation in even the harshest environments.

The Pressurized Environmental Housing is rated to provide IP 67 protection for a VG4 Series AutoDome® Modular Camera System from the elements, both natural and manmade. It is the ideal surveillance solution for applications that require frequent wash-down, including traffic, transit, bridges, tunnels and coastal installations where salt, moisture, dust, insects and fumes threaten the long-term operation of the camera.

Communications Modules

Fixed Communications Module

The Fixed Communications Module (standard on the AutoDome 100 Series) supports a variety of standard video and data transmission methods, including Bilinx (over coax and UTP) remote control, configuration, and firmware updates can also be performed over these cables, offering you unparalleled control of your cameras.

Standard Analog Communications Module

The Standard Analog Communications Module (standard on the AutoDome 200 and 300 Series) supports a variety of data transmission methods, including Bilinx (over coax and UTP) and fiber. Remote control, configuration, and firmware updates can also be performed over these cables, offering you unparalleled control of your cameras. Cable compensation provides extended coaxial and UTP distance runs while preventing the image quality degradation caused by signal losses from long cable lengths.

Alternative Protocol Communications Module

The Alternative Protocol Module allows you to control a VG4 AutoDome from an American Dynamics Manchester or Sensormatic RS-422 PTZ control device.

TCP/IP Communications Module

The TCP/IP Communications Module is an integral part of Bosch's AutoDome Modular Camera System, adding network connectivity to any AutoDome 100, 200, 300 or 500i Series camera. The TCP/IP module provides complete network-based control of all dome functionality including pan/tilt/zoom operation, presets, tours, and alarms as well as web-based configuration of all dome settings.

AutoDome cameras equipped with the TCP/IP Communications Module deliver true hybrid operation. With both Ethernet and analog BNC connections, network-enabled AutoDome cameras provide direct network connection while simultaneously supporting existing analog equipment. The TCP/IP Communications Module uses the latest compression technology, bandwidth throttling, and tri-streaming capabilities to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.

Power Supplies

Bosch offers a variety of power supply units that are available with 24 VAC, 120 VAC, or 230 VAC transformers, come with an optional analog, multimode Fiber Optic video transmitter/data receiver module, and are NEMA-rated.

Accessories

Fiber Optic Kits

The VG4-SFIBER-MM (multimode) is an analog, fiber optic conversion kit for use with VG4 Series AutoDomes using either the Fixed or the Standard Communications Modules. This module is a video transmitter/data receiver modules designed to be mounted directly into a VG4 AutoDome power supply box.

The VG4-SFPSCKT is a unique media converter module for use with VG4 series AutoDomes incorporating the Ethernet (TCP/IP) Communications Module. This media converter module is designed to accept any of the 10/100 Mbps SFP modules described below.

The media converter module along with the SFP module is user installed directly into the AutoDome's power supply box to provide an integrated fiber optic solution.

Mounts

Bosch offers three mounting options for the AutoDomes: roof, pipe, or pendant arm mounts. The pendant arm mounts come with a connected power supply unit. In addition, Bosch offers an accessory to mount a unit in an upright position on a flat surface.

Bubbles

All housings feature recessed screws and latches for increased tamper resistance. AutoDome in-ceiling models feature an impact-resistant rugged polycarbonate bubble to protect your camera from vandalism. Designed to meet stringent strength standards without compromising optical clarity, the Rugged Bubble can withstand impacts equivalent to a 10 pound (4.5 kilograms) weight dropped from a height of 10 feet (3 meters). AutoDome pendant cameras come equipped with a low-impact, high-resolution acrylic bubble for enhanced image clarity, but can easily be upgraded to the Rugged Bubble when needed.

Both the rugged polycarbonate and the high-resolution acrylic bubbles are available in clear, tinted (smoke), gold and chrome. The clear bubble offers maximum sensitivity by allowing as much light through as possible. The tinted, gold and chrome bubbles offer covertness by making it difficult to see the direction the camera is looking from the outside.

Certifications and Approvals

Region	Certification	
Europe	CE	VG4-1ab-cdefgh, VG4-2ab-cdefgh, VG4-3ab-cdefgh, VG4-5ab-cdefgh, VG4-A-PAxx, VG4-A-PSUxx EMC Directive, Low-Voltage Directive
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations	
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards	

Technical Specifications

Central Processor Unit Modules

VG4-MCPU-100	Unity Pass-through CPU, 100 Series
VG4-MCPU-200	Basic CPU, 200 Series
VG4-MCPU-300	Standard CPU, 300 Series
VG4-MCPU-500	Advanced CPU with Video Content Analysis, 500 Series

Camera Modules

2.7–13.5 mm Fixed Color Camera

Availability	100 Series only	
VG4-MCAM-51	PAL	
VG4-MCAM-61	NTSC	
Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)	
Lens		
Iris	Automatic	
Field of View	78.3° to 18.5°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off, auto (with adjustable limit), and manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC)/540 TVL (PAL)	
Sensitivity (typical)	30 IRE	50 IRE
SensUp Off	0.29 lx	0.9 lx
SensUp On (15x)	0.029 lx	0.09 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

2.7–13.5 mm Fixed Day/Night Camera

Availability	100 Series only	
VG4-MCAM-52	PAL	
VG4-MCAM-62	NTSC	
Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)	
Lens		
Iris	Automatic	
Field of View	78.3° to 18.5°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off, auto (with adjustable limit), and manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC)/540 TVL (PAL)	
Sensitivity (typical)	30 IRE	50 IRE
Day Mode		
SensUp Off	0.29 lx	0.9 lx
SensUp On (15x)	0.029 lx	0.09 lx

2.7–13.5 mm Fixed Day/Night Camera

Night Mode		
SensUp Off	0.12 lx	0.36 lx
SensUp On (15x)	0.012 lx	0.09 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

5–50 mm Fixed Color Camera

Availability	100 Series only
VG4-MCAM-53	PAL
VG4-MCAM-63	NTSC
Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)

Lens		
Iris	Automatic	
Field of View	47.5° to 5.0°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off, auto (with adjustable limit), and manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC)/540 TVL (PAL)	
Sensitivity (typical)	30 IRE	50 IRE
SensUp Off	0.42 lx	1.3 lx
SensUp On (15x)	0.042 lx	0.13 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

5–50 mm Fixed Day/Night Camera

Availability	100 Series Only
VG4-MCAM-54	PAL
VG4-MCAM-64	NTSC
Imager	1/3 in. Interline CCD (752 x 582 PAL)/(768 x 492 NTSC)

Lens		
Iris	Automatic	
Field of View	47.5° to 5.0°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off, auto (with adjustable limit), and manual	
Synchronization	Line-Lock (0° to 358° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	540 TVL (NTSC)/540 TVL (PAL)	
Sensitivity (typical)	30 IRE	50 IRE
Day Mode		
SensUp Off	0.42 lx	1.3 lx
SensUp On (15x)	0.042 lx	0.13 lx
Night Mode		
SensUp Off	0.17 lx	0.52 lx

5–50 mm Fixed Day/Night Camera

SensUp On (15x)	0.017 lx	0.052 lx
SNR	>50 dB	
White Balance	2500 K to 9000 K (with AWB hold mode and manual mode)	

18x Color Camera

Availability	200, 300, and 500i Series	
VG4-MCAM-11	PAL	
VG4-MCAM-21	NTSC	
Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)	
Lens	18x Zoom (4.1–73.8 mm) F1.4 to F3.0	
Focus	Automatic with manual override	
Iris	Automatic with manual override	
Field of View	2.7° to 48°	
Video Output	1.0 Vp-p, 75 Ohm	
Gain Control	Off/Auto (with adjustable limit)	
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal	
Aperture Correction	Horizontal and vertical	
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical	
Sensitivity (typical)	30 IRE	50 IRE
F1.4, 1/60 (1/50) shutter, max AGC	0.5 lx	0.8 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

18x Day/Night Camera

Availability	200, 300, and 500i Series
VG4-MCAM-12	PAL
VG4-MCAM-22	NTSC
Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	18x Zoom (4.1–73.8 mm) F1.4 to F3.0
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.7° to 48°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical

18x Day/Night Camera

Sensitivity (typical) ¹	30 IRE	50 IRE
Day Mode		
SensUp Off	0.4 lx	0.7 lx
SensUp On (15x)	0.0041 lx	0.0082 lx
Night Mode		
SensUp Off	0.05 lx	0.17 lx
SensUp On (15x)	0.0007 lx	0.0013 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

1) F1.4, 1/60 (1/50) shutter, max AGC

26x Day/Night Camera

Availability	200, 300, and 500i Series
VG4-MCAM-13	PAL
VG4-MCAM-23	NTSC
Imager	1/4-in Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	26x Zoom (3.5–91.0 mm) F1.6 to F3.8
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.3° to 55°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical

Sensitivity (typical) ²	30 IRE	50 IRE
Day Mode		
SensUp Off	0.5 lx	1.0 lx
SensUp On (15x)	0.0052 lx	.013 lx
Night Mode		
SensUp Off	0.10 lx	0.26 lx
SensUp On (15x)	0.0013 lx	0.0026 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

2) F1.6, 1/60 (1/50) shutter, max AGC

36x Day/Night Camera

Availability	300 and 500i Series
VG4-MCAM-14	PAL
VG4-MCAM-24	NTSC
Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)

36x Day/Night Camera

Lens	36x Zoom (3.4–122.4 mm) F1.6 to F4.5
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	1.7° to 57.8°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	540 TVL (NTSC, PAL) typical

Sensitivity (typical) ³	30 IRE	50 IRE
Day Mode		
SensUp Off	0.66 lx	1.4 lx
SensUp On (1/4) (15x)	0.033 lx	0.083 lx
Night Mode		
SensUp Off	0.166 lx	0.33 lx
SensUp On (1/4) (15x)	0.0065 lx	0.0164 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

3) F1.6, 1/60 (1/50) shutter, max AGC

Housing Modules

VG4-MHSG-CC	In-ceiling housing with a clear rugged polycarbonate bubble
VG4-MHSG-CT	In-ceiling housing with a tinted rugged polycarbonate bubble
VG4-MHSG-EC	Outdoor pendant with a clear high-resolution bubble
VG4-MHSG-ET	Outdoor pendant with a tinted high-resolution bubble
VG4-MHSG-NC	Pressurized environmental housing with a clear high-resolution bubble
VG4-MHSG-NT	Pressurized environmental housing with a tinted high-resolution bubble
VG4-MHSG-PC	Indoor pendant with a clear high-resolution bubble
VG4-MHSG-PT	Indoor pendant with a tinted high-resolution bubble

Communications Modules

VG4-MTRN-0	Fixed (100 Series) module
VG4-MTRN-C	Alternative protocol communications module
VG4-MTRN-E1	Ethernet (TCP/IP) communications module
VG4-MTRN-S	Standard analog communications module

Heating Module

VG4-SHTR-XT	Extended temp heater module extends temperature range to –60°C (–76°F) for EnviroDome® only
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Power Supplies

Model	Input	Output Rating	Input Fuses	Output Fuses	
				Camera	Heater
VG4-A-PSU0F ⁴ (with integrated fiber optic module)	24 VAC, 50/60 Hz	24 V @ 96 VA	5.0 A	2.0 A	3.15 A
VG4-A-PSU1	120 VAC, 50/60 Hz	24 V @ 96 VA	1.6 A	2.0 A	3.15 A
VG4-A-PSU1F ⁴ (with integrated fiber optic module)	120 VAC, 50/60 Hz	24 V @ 96 VA	1.6 A	2.0 A	3.15 A
VG4-A-PSU2	230 VAC, 50/60 Hz	24 V @ 96 VA	0.8 A	2.0 A	3.15 A
VG4-A-PSU2F ⁴ (with integrated fiber optic module)	230 VAC, 50/60 Hz	24 V @ 96 VA	0.8 A	2.0 A	3.15 A
Certifications	UL, CE, NEMA-rated, Plenum Rated				
Operating Temperature	-60°C to 50°C (-76°F to 122°F)				
Humidity	0% to 100%, condensing				
Environmental Protection	IP 66, IK 8 (IEC 62262)				
Color	White				

4) Integrated analog multimode fiber optic video transmitter/data receiver (VG4-SFIBER-MM).

Indoor Power Supplies⁵

Voltage Input			
ALTV244UL, ALTV248UL3, ALTV2416ULX3	115 VAC ± 10%, 50/60 Hz, 0.9 A		
Voltage Output			
ALTV244UL, ALTV248UL3, ALTV2416ULX3	24/28 VAC, unregulated		
Total Output Current			
	At 24 VAC	At 28 VAC	Max. Per Channel
ALTV244UL, ALTV248UL3	3.5 A	3.0 A	3.5 A
ALTV2416ULX3	7.0 A	6.0 A	3.5 A
Max. Current Output per Channel		3.5 A	
Fuse Ratings		3.5 A	
Main Fuse Ratings		5.0 A	
Maximum Power Draw		At 24 VAC	At 28 VAC
ALTV244UL, ALTV248UL3		84 W	72 W
ALTV2416ULX3		168 W	144 W

5) Available only in the Americas region.

Dimensions (L x H x W)

ALTV244UL, ALTV248UL3	215.9 x 190.5 x 88.9 mm (8.5 x 7.5 x 3.5 in.)
ALTV2416ULX3	330.2 x 342.9 x 88.9 mm (13.0 x 13.5 x 3.5 in.)

Certifications

UL, CE, CSA

Accessories – Fiber Optic Kits**VG4-SFIBER-MM**

Description	Multimode Fiber Optic Module
Compatible Receiver	LTC 4629 Series
Optical Fiber Compatibility	50/125 µm, 62.5/125 µm, low loss multimode glass fiber, rated for a minimum system bandwidth of 20 MHz
Max. Distance ⁶	4.0 km (2.5 miles)
Optical Budget	14 dB
Connector	One (1) ST connector
Wavelength (video/data)	850 nm / 1310 nm

VG4-SFPSCKT

Description	Fiber Optic Ethernet Media Converter kit. Requires a small form-factor pluggable (SFP) module (sold separately).
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port Full Duplex Optical Port
Compatible Receiver	CNFE2MC
Installation	Installed inside a VG4-A-PA1, VG4-A-PA2, VG4-A-PSU1 or a VG4-A-PSU2 power supply box with supplied mounting hardware

SFP Modules

Description	Interchangeable modules available for use with MMF or SMF optical fiber.
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant

Mechanical

Dimensions (LxWxH)	
• SFP-2 and SFP-3	55.5 x 13.5 x 8.5 mm (2.2 x 0.5 x 0.3 in.)
• SFP-23, SFP-24, SFP-25, SFP-26	63.8 x 13.5 x 8.5 mm (2.5 x 0.5 x 0.3 in.)
Weight (all SFP modules)	0.23 kg (.05 lb)

	Type	Connector	Wavelength (transmit/receive)	Max. Distance
SFP-2	MMF	Duplex LC	1310 nm / 1310 nm	2 km (1.2 miles)
SFP-3	SMF	Duplex LC	1310 nm / 1310 nm	20 km (12.4 miles)
SFP-23	SMF	Single SC	1310 nm / 1550 nm	60 km (37.3 miles)
SFP-24	SMF	Single SC	1550 nm / 1310 nm	60 km (37.3 miles)
SFP-25	MMF	Single SC	1310 nm / 1550 nm	2 km (1.2 miles)
SFP-26	MMF	Single SC	1550 nm / 1310 nm	2 km (1.2 miles)

Fiber Compatibility

Optical Fiber Compatibility, MMF	50/125 µm MMF. For 50/125 µm fiber, subtract 4 dB from the specified optical budget value. Must meet or exceed fiber standard ITU-T G.651.
Optical Fiber Compatibility, SMF	8–10/125 µm SMF. Must meet or exceed fiber standard ITU-T G.652.
Optical Distance Specifications	Specified transmission distances are limited to the optical loss of the fiber and any additional loss introduced by connectors, splices, and patch panels. The modules are designed to operate over the entire optical loss budget range, so they do not require a minimum loss in order to operate.

Accessories – Mounts

VG4-A-PA0	Pendant arm mount without transformer, white
VG4-A-PA0N	Pendant arm mount without transformer, white, for Pressurized Environmental Housing module
VG4-A-PA0F ⁷	Pendant arm mount without transformer, including an integrated multimode fiber optic module, white
VG4-A-PA0FN ⁷	Pendant arm mount without transformer, including an integrated multimode fiber optic module, white, for Pressurized Environmental Housing module
VG4-A-PA1	Pendant arm mount with 120 VAC transformer, white
VG4-A-PA1N	Pendant arm mount with 120 VAC transformer, white, for Pressurized Environmental Housing module
VG4-A-PA1F ⁷	Pendant arm mount with 120 VAC transformer power supply including an integrated multimode fiber optic module, white
VG4-A-PA1FN ⁷	Pendant arm mount with 120 VAC transformer power supply including an integrated multimode fiber optic module, white, for Pressurized Environmental Housing module
VG4-A-PA2	Pendant arm mount with 230 VAC transformer, white
VG4-A-PA2N	Pendant arm mount with 230 VAC transformer, white, for Pressurized Environmental Housing module
VG4-A-PA2F ⁷	Pendant arm mount with 230 VAC transformer power supply including an integrated multimode fiber optic module, white

VG4-A-PA2FN ⁷	Pendant arm mount with 230 VAC transformer power supply including an integrated multimode fiber optic module, white, for Pressurized Environmental Housing module
VG4-A-9230	Roof mount, white
LTC 9230/01	Accessory for mounting a unit in an upright position on a flat surface (for use with VG4-A-9230)
VG4-A-9541	Pole mount adapter for a pendant arm, designed for poles with a diameter between 100–380 mm (4-15 in.)
VG4-A-9542	Corner mount adapter for a pendant arm
VG4-A-9543	Pipe mount, white
VG4-A-9543N	Pipe mount, white, for Pressurized Environmental Housing module
LTC 9316/00P	Square, heavy duty, steel, 16-ft mounting pole, supports up to 91 kg (200 lbs)

7) Integrated analog multimode fiber optic video transmitter/data receiver (VG4-SFIBER-MM).

VG4-SBOX-24VAC	Box without cover and transformer
VG4-SBOX-120VAC	Box, no cover, with a 120 VAC transformer
VG4-SBOX-230VAC	Box, no cover, with a 230 VAC transformer
VG4-SBOX-COVER	Cover for VG4-SBOX-24VAC, VG4-SBOX-120VAC and VG4-SBOX-230VAC
VG4-SARM	Pendant arm with wiring
VG4-SBIM	Interface box for in-ceiling housing
VG4-A-ARMPLATE	Mounting Plate for VG4-SARM

Accessories – Bubbles

VG4-SBUB-CCH	Rugged Polycarbonate Chrome, for in-ceiling housing
VG4-SBUB-CCL	Rugged Polycarbonate Clear, for in-ceiling housing
VG4-SBUB-CGL	Rugged Polycarbonate Gold, for in-ceiling housing
VG4-SBUB-CTI	Rugged Polycarbonate Tinted, for in-ceiling housing
VG4-SBUB-PCH	Rugged Polycarbonate Chrome, for pendant housing
VG4-SBUB-PCH-A	High-resolution Chrome, for pendant housing
VG4-SBUB-PCL	Rugged Polycarbonate Clear, for pendant housing
VG4-SBUB-PCL-A	High-resolution Clear, for pendant housing
VG4-SBUB-PGL	Rugged Polycarbonate Gold, for pendant housing
VG4-SBUB-PGL-A	High-resolution Gold, for pendant housing
VG4-SBUB-PTI	Rugged Polycarbonate Tinted, for pendant housing
VG4-SBUB-PTI-A	High-resolution Tinted, for pendant housing

Ordering Information

VG4-MCAM-51 AutoDome 2.7-13.5 mm Fixed PAL Color Camera Module 2.7–13.5 mm color PAL camera, 1/3 in. CCD, 540 TVL	VG4-MCAM-51
VG4-MCAM-52 AutoDome 2.7-13.5 mm Fixed PAL Day/Night Camera Module 2.7–13.5 mm day/night PAL camera, 1/3 in. CCD, 540 TVL	VG4-MCAM-52
VG4-MCAM-53 AutoDome 5-50 mm Fixed PAL Color Camera Module 5–50 mm color PAL camera, 1/3 in. CCD, 540 TVL	VG4-MCAM-53
VG4-MCAM-54 AutoDome 5-50 mm Fixed PAL Day/Night Camera Module 5–50 mm day/night PAL camera, 1/3 in. CCD, 540 TVL	VG4-MCAM-54
VG4-MCAM-11 AutoDome 18x PAL Color Camera Module High-performance, 18x (4.1–73.8 mm) PTZ color PAL camera, F1.4 to F3.0, 1/4 in. CCD, 460 TVL	VG4-MCAM-11
VG4-MCAM-21 AutoDome 18x NTSC Color Camera Module High-performance, 18x (4.1–73.8 mm) NTSC color PAL camera, F1.4 to F3.0, 1/4 in. CCD, 470 TVL	VG4-MCAM-21
VG4-MCAM-12 AutoDome 18x PAL Day/Night Camera Module High-performance, 18x (4.1–73.8 mm) PTZ day/night PAL camera, F1.4 to F3.0, 1/4 in. CCD, 460 TVL	VG4-MCAM-12
VG4-MCAM-22 AutoDome 18x NTSC Day/Night Camera Module High-performance, 18x (4.1–73.8 mm) NTSC day/night camera, F1.4 to F3.0, 1/4 in. CCD, 470 TVL	VG4-MCAM-22
VG4-MCAM-13 AutoDome 26x PAL Day/Night Camera Module High-performance, 26x (3.5–91.0 mm) PAL PTZ day/night camera, F1.6 to F3.8, 1/4 in. CCD, 460 TVL	VG4-MCAM-13
VG4-MCAM-23 AutoDome 26x NTSC Day/Night Camera Module High-performance, 26x (3.5–91.0 mm) NTSC PTZ day/night camera, F1.6 to F3.8, 1/4 in. CCD, 470 TVL	VG4-MCAM-23
VG4-MCAM-14 AutoDome 36x PAL Day/Night Camera Module High-performance, 36x (3.4–122.4 mm) PTZ Day/Night PAL camera, F1.6 to F4.5, 1/4 in. CCD, 540 TVL	VG4-MCAM-14
VG4-MCPU-100 AutoDome Unity Pass-through CPU Module	VG4-MCPU-100
VG4-MCPU-200 AutoDome Basic CPU Module	VG4-MCPU-200
VG4-MCPU-300 AutoDome Standard CPU Module	VG4-MCPU-300
VG4-MTRN-C Alternative Protocol Communications Module	VG4-MTRN-C

Ordering Information

VG4-MTRN-E AutoDome TCP/IP Communications Module	VG4-MTRN-E
VG4-MTRN-0 AutoDome Fixed Communications Module	VG4-MTRN-0
VG4-MTRN-S AutoDome Standard Analog Communications Module	VG4-MTRN-S
VG4-SFIBER-MM Analog Multimode Fiber Optic Kit Analog multimode video transmitter/data receiver fiber optic kit	VG4-SFIBER-MM
VG4-MHSG-CC AutoDome In-ceiling Clear Housing Module In-ceiling housing with a clear rugged polycarbonate bubble	VG4-MHSG-CC
VG4-MHSG-CT AutoDome In-ceiling Tinted Housing Module In-ceiling housing with a tinted rugged polycarbonate bubble	VG4-MHSG-CT
VG4-MHSG-EC AutoDome Outdoor Clear Pendant Housing Module Outdoor pendant housing with a clear high-resolution bubble	VG4-MHSG-EC
VG4-MHSG-ET AutoDome Outdoor Tinted Pendant Housing Module Outdoor pendant housing with a tinted high-resolution bubble	VG4-MHSG-ET
VG4-MHSG-PC AutoDome Indoor Clear Pendant Housing Module Indoor pendant housing with a clear high-resolution bubble	VG4-MHSG-PC
VG4-MHSG-PT AutoDome Indoor Tinted Pendant Housing Module Indoor pendant housing with a tinted high-resolution bubble	VG4-MHSG-PT
VG4-SBUB-CCL Rugged Clear Bubble for an In-ceiling Housing Clear rugged polycarbonate bubble for an in-ceiling housing	VG4-SBUB-CCL
VG4-SBUB-CTI Rugged Tinted Bubble for an In-ceiling Housing Tinted rugged polycarbonate bubble for an in-ceiling housing	VG4-SBUB-CTI
VG4-SBUB-PCL Rugged Clear Bubble for a Pendant Housing Clear rugged polycarbonate bubble for a pendant housing	VG4-SBUB-PCL
VG4-SBUB-PTI Rugged Tinted Bubble for a Pendant Housing Tinted rugged polycarbonate bubble for a pendant housing	VG4-SBUB-PTI
VG4-A-9541 Pole Mount Adapter Pole mount adapter for a pendant arm, designed for poles with a diameter from 100–380 mm (4–15 in.), white	VG4-A-9541
VG4-A-9542 Corner Mount Adapter Corner mount adapter for a pendant arm	VG4-A-9542

Ordering Information	
Accessories	
LTC 9230/01 Flat Roof Mount Adapter for mounting a unit in an upright position on a flat surface for roof parapet mount LTC 9230/00	LTC 9230/01
VG4-A-9230 Roof Mount Roof mount, white	VG4-A-9230
VG4-A-9541 Pole Mount Adapter Pole mount adapter for a pendant arm, designed for poles with a diameter from 100–380 mm (4–15 in.), white	VG4-A-9541
VG4-A-9542 Corner Mount Adapter Corner mount adapter for a pendant arm	VG4-A-9542
VG4-A-9543 Pipe Mount Pipe mount, white	VG4-A-9543
VG4-A-PA0 Pendant Arm Mount Pendant arm mount, no transformer, white	VG4-A-PA0
VG4-A-PA0F Pendant Arm Mount with Fiber Optic Module Pendant arm mount, no transformer, with an integrated analog multimode fiber optic video transmitter/data receiver module, white	VG4-A-PA0F
VG4-A-PA1 Pendant Arm Mount with 120 VAC Transformer Pendant arm mount with a 120 VAC transformer, white	VG4-A-PA1
VG4-A-PA1F Pendant Arm Mount with Fiber Optic Module with 120 VAC Transformer Pendant arm mount with an integrated analog multimode fiber optic video transmitter/data receiver module and a 120 transformer, white	VG4-A-PA1F
VG4-A-PA2 Pendant Arm Mount with 230 VAC Transformer Pendant arm mount with a 230 VAC transformer, white	VG4-A-PA2
VG4-A-PA2F Pendant Arm Mount with Fiber Optic Module with 230 VAC Transformer Pendant arm mount with an integrated analog multimode fiber optic video transmitter/data receiver module and a 230 VAC transformer, white	VG4-A-PA2F
VG4-A-PSU0F 24 VAC Power Supply Unit with Fiber Optic Module 24 VAC, NEMA-rated with an integrated analog multimode fiber optic video transmitter/data receiver module, white	VG4-A-PSU0F
VG4-A-PSU1 120 VAC Power Supply Unit 120 VAC, 100 W, NEMA-rated, white	VG4-A-PSU1
VG4-A-PSU1F 120 VAC Power Supply Unit with Fiber Optic Module 120 VAC, 100 W, NEMA-rated with an integrated analog multimode fiber optic video transmitter/data receiver module, white	VG4-A-PSU1F
VG4-A-PSU2 230 VAC Power Supply Unit 230 VAC, 100 W, NEMA-rated, white	VG4-A-PSU2

Ordering Information	
VG4-A-PSU2F 230 VAC Power Supply Unit with Fiber Optic Module 230 VAC, 100 W, NEMA-rated with an integrated analog multimode fiber optic video transmitter/data receiver module, white	VG4-A-PSU2F
VG4-A-ARMPLATE Mounting Plate Mounting plate for VG4-SARM	VG4-A-ARMPLATE
VG4-SBOX-24VAC Power Supply Box Box without cover or transformer	VG4-SBOX-24VAC
VG4-SBOX-120VAC Power Supply Box Box, without cover, with a 120 VAC transformer	VG4-SBOX-120VAC
VG4-SBOX-230VAC Power Supply Box Box, without cover, with a 230 VAC transformer	VG4-SBOX-230VAC
VG4-SBOX-COVER Cover for Power Supply Box Cover for VG4-SBOX-24VAC, VG4-SBOX-120VAC, VG4-SBOX-230VAC, and EX30 junction box	VG4-SBOX-COVER
VG4-SHTR-XT Heating Module Extended temperature heater module extends temperature range to –60°C (–76°F) for EnviroDome® only	VG4-SHTR-XT
Software Options	
VP-CFGSFT Bilinx Configuration Tool configuration software with USB adapter	VP-CFGSFT

AutoDome TCP/IP Communications Module



Features

- ▶ **Adds TCP/IP connectivity to any AutoDome 100, 200, 300 or 500i Series camera**
- ▶ **Choice of standard, including high-performance H.264 and JPEG**
- ▶ **High-quality H.264 compression at 4CIF/D1 and CIF resolutions**
- ▶ **Tri-streaming generates three independent IP video streams (simultaneous H.264 dual streams and JPEG streaming)**
- ▶ **Supports hybrid analog/IP operation**
- ▶ **Direct iSCSI device support for Recording at the Edge**
- ▶ **Alarm notification via e-mail and upload of images via e-mail and FTP**
- ▶ **SNMP (v2 MIB-II) support for network management**

The TCP/IP Communications Module is an integral part of Bosch's AutoDome Modular Camera System, adding network connectivity to any AutoDome 100, 200, 300 or 500i Series camera. The TCP/IP module provides complete network-based control of all dome functionality including pan/tilt/zoom operation, presets, tours and alarming as well as web-based configuration of all dome settings.

AutoDome cameras equipped with the TCP/IP Communications Module deliver true hybrid operation. With both Ethernet and analog BNC connections, network-enabled AutoDome cameras provide direct network connection while simultaneously supporting existing analog equipment. The TCP/IP Communications Module uses H.264 compression and bandwidth throttling to efficiently manage bandwidth and storage requirements while delivering outstanding image quality.

Built-in iSCSI support allows network-enabled AutoDomes to stream video directly to an iSCSI RAID array. This eliminates the need to stream all the video data over the network to a conventional network video recorder (NVR). The TCP/IP Communications Module can be configured to send alarm notifications with associated snapshot images via e-mail. SNMP support is included for remote device monitoring and management.

Functions

Ultra-efficient H.264 encoding

The AutoDome TCP/IP Communications Module uses an advanced H.264 encoder to create DVD-quality streaming video at ultra-low bit rates. Use of H.264 encoding, bandwidth throttling and multicasting capabilities, minimizes bandwidth and storage usage to significantly reduce costs. The AutoDome TCP/IP Communications Module supports 4CIF, and CIF resolutions at frame rates up to 25 and 30 images per second (for PAL and NTSC respectively).

The use of H.264 reduces bit rates and storage requirements by as much as 30% compared to standard MPEG-4 without sacrificing image quality.

Tri-streaming video

The AutoDome TCP/IP Communications Module is capable of generating Two independent H.264 streams with up to 4CIF resolution plus one JPEG stream simultaneously. This profile allows you to stream high-quality H.264 images for live viewing and recording, and at the same time, stream JPEG images to a remote FTP server or PDA device.

ONVIF conformance

The TCP/IP Communications Module conforms to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

Hybrid flexibility

The TCP/IP Communications Module enables true hybrid camera operation. With both Ethernet and BNC connections, AutoDomes equipped with a TCP/IP Communications Module can simultaneously stream IP video across a local or wide area network, and CVBS video via coaxial cabling to support existing analog equipment. Network video streams are sent over IP networks and can be viewed with the Bosch Divar XF Digital Video Recorder, or on a PC running VIDOS video management software. Alternatively, a Bosch IP video decoder can be used to display the video on an analog CVBS or VGA monitor. For maximum accessibility, the video can be viewed using a web browser.

The built in web server allows authorized access using a standard web browser, such as Internet Explorer, eliminating the need to install special viewing software.

Audio

The AutoDome TCP/IP Communications Module provides integrated one-way audio support. This support allows the user to remotely monitor audio from the camera site directly over the network. Bosch enables video and audio to be relayed as a single media stream so the two are synchronized.

iSCSI device support

Built-in iSCSI support allows a network-enabled AutoDome to stream video directly to an iSCSI RAID array. This enables local video storage just like a conventional DVR without streaming high bandwidth video across the network. Local recording, or Recording at the Edge, minimizes bandwidth usage and makes system recording performance totally independent from network performance.

Alarm management

The TCP/IP Communications Module extends AutoDome's powerful, flexible alarm management system even further. An AutoDome equipped with the optional network module can be configured to send alarm notifications via e-mail. Each e-mail notification contains a text description of the alarm as well as a digital image of the event.

Network-based control and configuration

The AutoDome TCP/IP Communications Module enables full camera control and configuration capabilities over the network. Operators or technicians can control camera pan/tilt/zoom operation, presets, tours, and alarm management functions virtually anywhere without need for additional wiring.

The embedded web server on the Communications Module lets the installer access all the user settings, make camera adjustments, and update firmware via a standard web browser.

The AutoDome TCP/IP Communications Module supports the Bosch Divar XF, Video Recording Manager VRM, Vidos, and the Bosch Video Management System.

Viewing

View the AutoDome IP video on a PC using a Web browser, in the Bosch Video Management System, or integrate it into another video management system.

The AutoDome TCP/IP Communications Module is also used with VASA—Bosch's hybrid IP integration software—offering Allegiant IntuiKey users the ability to view an Allegiant camera or one from an IP-based system.

Device management

Simple Network Management Protocol (SNMP) support facilitates the remote monitoring and management. The TCP/IP Communications Module provides full support for SNMP v3.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Technical Specifications

Parts Included

Quantity	Component
1	TCP/IP Communications Module

Electrical

Compression Standards	H.264 (ISO/IEC 14496-10), M-JPEG, JPEG
Video Data Rate	9.6 Kbps–6 Mbps constant and variable
Video Resolution	704x576/480 (4CIF; 25/30IPS) 352x288/240 (CIF; 25/30IPS)
GOP Structure	I, IP, IPBB
Overall Delay (IP)	240 ms
Frame Rate	1-25/30 IPS (PAL/NTSC) Field/frame based coding
Network Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, RTSP, 802.1x, iSCSI, DynDNS, UPnP
Ethernet	10/100 Base-T, auto sensing, half/full duplex, RJ45
Audio Line In*	9 K Ohm typ, 5.5 Vp-p max

* With Ethernet models, the bi-phase ± can optionally be used as the audio line in connector.

Software Control

Unit Configuration	Via Microsoft Internet Explorer 7.0 Web browser or higher, Divar XF, Vidos, or Configuration Manager
Software Update	Flash ROM, remote update

Environmental

Input Voltage	Supplied by AutoDome
Power Consumption	4 W in addition to AutoDome
Weight	Approx. 0.17 kg (0.37 lb)
Operating Temp.	Depends on specific AutoDome model configuration

Ordering Information

VG4-MTRN-E AutoDome® TCP/IP Communications Module	VG4-MTRN-E
TCP/IP (Ethernet) communications module for AutoDome 100, 200, 300 and 500i Series products	

Accessories

VIP-XD	VIP-XD
H.264/MPEG-4/MPEG-2 single/quad-stream decoder, serial I/O, alarm in, relay	

Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
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VG4 Series Pressurized Environmental Housing Module



Features

- ▶ **Maximum environmental protection against dust, smog, salt air and humidity**
- ▶ **Meets IP67 and NEMA 4X specifications**
- ▶ **Maintains a dry, clean atmosphere for camera, lens, and pan/tilt/zoom (PTZ) mechanism**
- ▶ **Extended temperature range**
- ▶ **Compatible with all AutoDome modules and accessories**
- ▶ **Available in 200, 300 and 500i Series configurations**

The Bosch VG4 Series Pressurized Environmental Housing module protects a VG4 AutoDome® Modular Camera System from the elements, both natural and manmade. It is the ideal surveillance solution for applications that require frequent wash-down, including traffic, transit, bridges, tunnels and coastal installations where salt, moisture, dust, insects and fumes threaten the long-term operation of the camera. The pressurized housing module is the ultimate way to protect your surveillance camera investment from the environment.

This module is available as part of a VG4 AutoDome assembly (power, mounting, and fiber optic accessories must be ordered separately). In addition, the module can be ordered separately.

Functions

This rugged pressurized housing, combined with the AutoDome Modular Camera System, maintains peak performance in the worst of conditions. The IP67 rated pressurized dome is the ultimate way to protect the camera from harsh environmental conditions.

Image control and quality are integral aspects of any outdoor surveillance system. The VG4 Pressurized Environmental Housing option offers the same lenses from, 18x to 36x, as the standard VG4 series, and offers a full 12x digital zoom (for 300 and 500i Series AutoDomes) once the end of the optical zoom is reached. In addition, the scaling feature ensures optimal control for viewing at all zoom settings.

To enhance sensitivity when night falls, the day/night AutoDome automatically switches from color to monochrome by removing the infrared filter. Whether you program the camera to switch automatically, or use the manual switch, the result is optimal camera function, day or night. This feature automatically reduces the shutter speed to as little as one second, increasing sensitivity by more than 50 times, even in the darkest conditions.

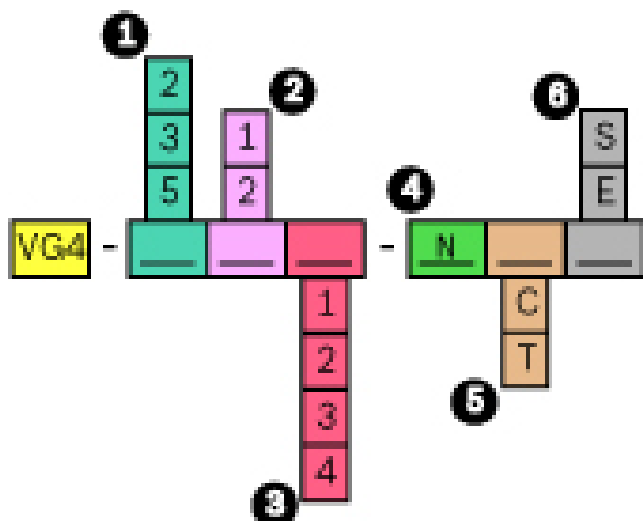
Remote control, configuration and updates can be performed over the video cable (coax or passive UTP) when using Bilinx-compatible control and configuration devices (such as the VP-CFGSFT configuration tool or the LTC 8016 Allegiant Bilinx Interface).

The menu for these devices can display multiple languages, including: English, Czech, Dutch, French, German, Italian, Polish, Portuguese, Spanish and Russian.

Certifications and Approvals

Environmental	IP67, NEMA 4X
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4 and EN50121-4
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



VG4 Series Ordering Information with Pressurized Environmental Housing
(Power Supply, Mount and Fiber Optic options must be ordered separately)

1 VG4 Series

- 2 200 Series
- 3 300 Series
- 5 500i Series

2 Video Format

- 1 PTZ PAL
- 2 PTZ NTSC

3 Camera Type

- 1 18x Color PTZ¹
- 2 18x Day/Night PTZ
- 3 26x Day/Night PTZ
- 4 36x Day/Night PTZ

4 Enclosure

N Pressurized Environmental Housing

5 Bubble

- C Clear
- T Tinted

6 Communications

- S Standard (Coax/UTP)
- E Ethernet (TCP/IP)

Note: You can order the Pressurized Environmental Housing-as part of a VG4 kit or you can order the housing module (VG4-MHSG-NC or VG4-MHSG-NT) separately.

1 Available with the 200 Series only.

2 No transformer included. Customer must supply an approved 24 VAC limited power supply (VG4-A-PSUx or equivalent).

3 Roof mount mounts to vertical Parapet. For flat roof installation, order an additional LTC 9230/01 Flat Roof Adapter Plate.

4 The fiber optic option is multimode with biphasic; requires LTC 4629 at the system.

Technical Specifications

VG4 Pressurized Environmental Housing Module

VG4-MHSG-NC	Pressurized Environmental Housing Module, with Clear Bubble
VG4-MHSG-NT	Pressurized Environmental Housing Module, Tinted Bubble

Mechanical

Weight	2.23 kg (4.92 lb)
Pan Range	360° cont.
Tilt Angle	18° above horizon
Variable Speed	0.1°/s-120°/s
Pre-position Speed	Pan: 360°/s Tilt: 100°/s
Preset Accuracy	± 0.1° typ.
Nitrogen Fill Valve	Schrader fill valve
Recommended Internal Pressure	62.05 kPa (9.0 psi) to 75.84 kPa (11.0 psi)
Maximum Internal Pressure	75.84 kPa (11.0 psi) ± 5%

Electrical

Power	21-30 VAC 50/60 Hz
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Power Draw (typical)

Analog Model	51 W (Add 16 W if using VG4-SHTR-XT kit)
Ethernet Model	55 W (Add 16 W if using VG4-SHTR-XT kit)

Environmental

Humidity	0% to 100% relative, condensing
Ingress Protection	IP67 (NEMA 4X)
Operating Temperature	-40°C to 60°C (-40°F to 140°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F)

VG4 Series Camera Modules

Camera 36x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	36x Zoom (3.4 – 122.4 mm) F1.6 to F4.5
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	1.7° to 57.8°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (-120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	540 TVL (NTSC, PAL) typical

Sensitivity (typical) ⁵	30 IRE	50 IRE
Day Mode		
SensUp Off	0.66 lx	1.4 lx
SensUp On (1/4) (15x)	0.033 lx	0.083 lx
Night Mode		
SensUp Off	0.166 lx	0.33 lx
SensUp On (1/4) (15x)	0.0065 lx	0.0164 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	
5 F1.6, 1/60 (1/50) shutter, max AGC.		

Camera 26x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	26x Zoom (3.5 – 91.0 mm) F1.6 to F3.8
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.3° to 55°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical

Sensitivity (typical) ⁶	30 IRE	50 IRE
Day Mode		
SensUp Off	0.5 lx	1.0 lx
SensUp On (15x)	0.0052 lx	.013 lx
Night Mode		
SensUp Off	0.10 lx	0.26 lx
SensUp On (15x)	0.0013 lx	0.0026 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

6 F1.6, 1/60 (1/50) shutter, max AGC.

18x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	18x Zoom (4.1 – 73.8 mm) F1.4 to F3.0
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.7° to 48°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal

Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical

Sensitivity (typical) ⁷	30 IRE	50 IRE
Day Mode		
SensUp Off	0.4 lx	0.7 lx
SensUp On (15x)	0.0041 lx	0.0082 lx
Night Mode		
SensUp Off	0.05 lx	0.17 lx
SensUp On (15x)	0.0007 lx	0.0013 lx
Electronic Shutter Speed	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

7 F1.4, 1/60 (1/50) shutter, max AGC.

Camera 18x Color

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL)/(768 x 494 NTSC)
Lens	18x Zoom (4.1 – 73.8 mm) F1.4 to F3.0
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.7° to 48°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off/Auto (with adjustable limit)
Synchronization	Line-Lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Horizontal Resolution	NTSC: 470 TVL, typical PAL: 480 TVL, typical

Sensitivity (typical)	30 IRE	50 IRE
F1.4, 1/60 (1/50) shutter, max AGC	0.5 lx	0.8 lx
Electronic Shutter Speed (AES)	1 to 1/10,000	
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

VG4 Series General Specifications**Surge Suppression**

Protection on Video	Peak current 10 kA (Gas Tube Arrester), peak power 1000 W (10/1000 µ)
Protection on RS-232/485, Biphase	Peak current 10 A, peak power 300 W (8/20 µ)
Protection on Alarm Inputs	Peak current 17 A, peak power 300 W (8/20 µ)
Protection on Alarm Outputs	Peak current 2 A, peak power 300 W (8/20 µ)
Protection on Relay Outputs	Peak current 7.3 A, peak power 600 W (10/1000 µ)

Protection on Power Input (Dome)	Peak current 7.3 A, peak power 600 W (10/1000 µ)
Protection on Power Output (Arm Power Supply)	Peak current 21.4 A, peak power 1500 W (10/1000 µ)

Miscellaneous

Sectors/Titling	16 independent sectors with 20-character titles/sector
Camera Setup/Control	Biphase, RS-232, RS-485, Bilinx ⁸ (coax)
Communications Protocols	Biphase, Bilinx ⁸ , Pelco P, and Pelco D

Pre-positions

500/300 Series	99, each with 20-character titles
200 Series	64, each with 20-character titles

Tours

Guard Tours (500/300 Series)	Two (2) types of tours: <ul style="list-style-type: none"> Recorded tours - two (2), total duration 15 minutes Preset tour - one (1), consisting of up to 99 scenes, consecutively and one (1) customized up to 99 scenes
Preset Tour (200 Series)	One (1), consisting of up to 64 scenes, consecutively
Supported Languages	English, Czech, Dutch, French, German, Italian, Polish, Portuguese, Russian and Spanish

⁸ Bilinx not available on Ethernet models.

Cable Compensation

Max Distance	With Pre-comp OFF	With Pre-comp ON
RG-59/U	1000 ft (300 m)	2000 ft (600 m)
RG-6/U	1500 ft (450 m)	3000 ft (900 m)
RG-11/U	2000 ft (600 m)	4000 ft (1200 m)
Cat 5/UTP (Passive receiver)	750 ft (225 m)	1500 ft (450 m)

User Connections

Power (Camera)	21-30 VAC, 5/60 Hz
Power (Heater)	21-30 VAC, 50/60 Hz
Biphase ±	Control Data
Audio Line In ⁹	9 K Ohm typ, 5.5 Vp-p max
RS-232 RX/TX or RS-485 ± - optional control data (dip switch selectable)	
Video	BNC/UTP ¹⁰
EOLR Alarm Inputs (2)	Programmable for "normally open", "normally closed", "normally open-supervised", "normally closed-supervised"
Alarm Inputs (5)	Programmable for "normally open" or "normally closed"
Relay Out (1)	Dry contact output rating: 2 A @ 30 VAC
Open Collector Outputs (3)	32VDC@150 ma max

⁹ With Ethernet models, the biphase ± can optionally be used as the audio line in connector.

10 Ethernet models have no UTP analog output only BNC (coax).

VG4 Series Mounts and Accessories**Pendant Arm Mounts**

Wall Arm (No Transformer)	VG4-A-PA0N
Wall Arm (120/230 VAC Transformer)	VG4-A-PA1N/ VG4-A-PA2N
Wall Arm (No Transformer with Fiber Optics)	VG4-A-PA0FN
Wall Arm (120/230 VAC Transformer and Fiber Optics)	VG4-A-PA1FN/ VG4-A-PA2FN

Optional Mounting Plates for Arm Mounts

Corner Mounting Plate	LTC 9542/01
Mast (Pole) Mounting Plate	LTC 9541/01

Pendant Pipe Mounts

Pipe Mount Cap	VG4-A-9543N
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Pendant Roof Mounts

Roof (Parapet) Mount	VG4-A-9230
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Optional Mounting Plates for Roof Mounts

Flat Roof Adapter for Parapet Mount	LTC 9230/01
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Power Supplies

Outdoor Power Supply Box (120/230 VAC Transformer)	VG4-A-PSU1 / VG4-A-PSU2
Outdoor Power Supply Box (120/230 VAC Transformer and Fiber Optics)	VG4-A-PSU1F / VG4-A-PSU2F

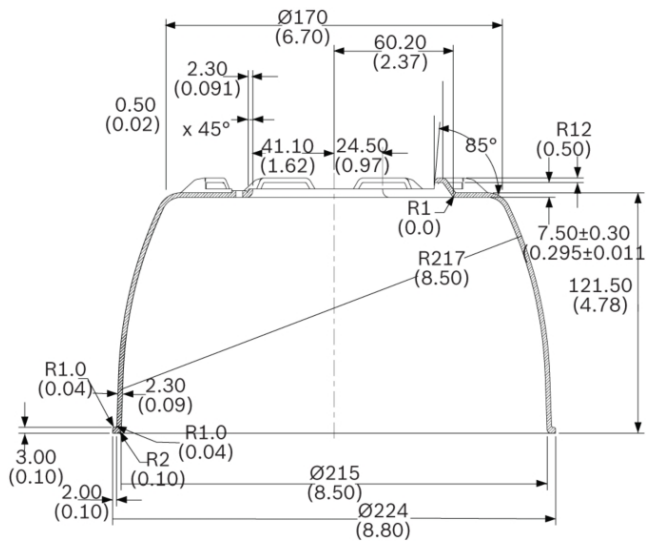
Heater/Blower Module

Extended temp heater module extends temperature range to -60°C (-76°F) for EnviroDome [®] only	VG4-SHTR-XT
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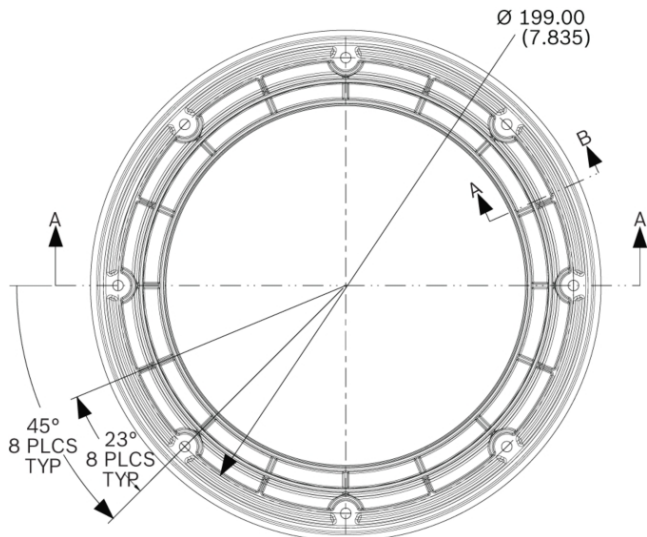
Fiber Optic Kit

VG4-SFIBER-MM	
Description	Multimode Fiber Optic Module
Compatible Receiver	LTC 4629 Series
Optical Fiber Compatibility	50/125 µm, 62.5/125 µm, low loss multimode glass fiber, rated for a minimum system bandwidth of 20 MHz
Max. Distance ¹¹	4.0 km (2.5 miles)
Optical Budget	14 dB
Connector	One (1) ST connector
Wavelength (video/data)	850 nm / 1310 nm

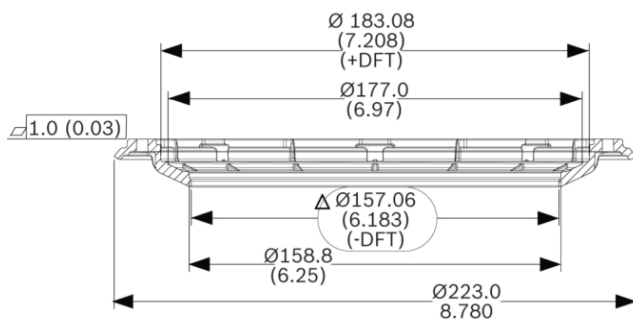
¹¹ Optical transmission distance is limited to optical loss of the fiber and any additional loss introduced by connectors, splices and patch panels.



Pressurized Environmental Housing – Side View



Bubble Support Ring – Bottom View



Bubble Support Ring – Side View

Ordering Information

VG4 Series Kit with Pressurized Environmental Housing

VG4 Series

Contact your Bosch Security Systems, Inc. representative for complete ordering information for the VG4 Series AutoDome Modular Camera System with the Pressurized Environmental Housing.

PRS Series Pressurized Dome Outdoor Housing Systems



Features

- ▶ **Maximum environmental protection against dust, smog, salt air, humidity, etc.**
- ▶ **Meets IP67 and NEMA 4X**
- ▶ **Maintains a dry, clean atmosphere for camera, lens, and pan/tilt/zoom (PTZ)**
- ▶ **UV protected**
- ▶ **Low pressure sensor alarm**
- ▶ **Sector blanking and privacy masking**
- ▶ **Remotely configurable (Bilinx or Bi-Phase)**

The Bosch pressurized dome housing unit protects the AutoDome® camera from the elements, both natural and manmade. It is the ideal surveillance solution for applications which require frequent wash-down, including traffic, transit, bridges, tunnels and coastal installations where salt, moisture, dust, insects and fumes threaten the long-term operation of the camera. The pressurized dome is the ultimate way to protect your surveillance camera investment from the environment.

Functions

This rugged pressurized housing, combined with the EnviroDome camera module, maintains peak performance in the worst of conditions. No matter what the elements bring, it's no match for this combination of camera and housing.

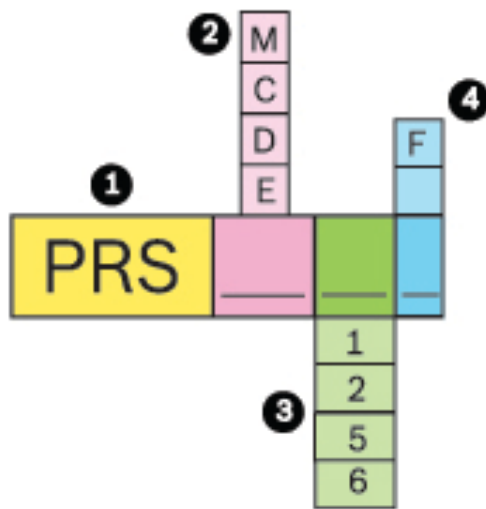
Image control and quality are integral aspects of any outdoor surveillance system. The PressureDome offers optical zoom lenses from 18x to 26x, and all systems offer a full 12x digital zoom once the end of the optical zoom is reached. In addition, the patented scaling feature ensures optimal control for viewing at all zoom settings.

To enhance sensitivity when night falls, the day/night PressureDome automatically switches from color to monochrome by removing the infrared filter. Whether you program the camera to switch automatically, or use the manual switch, the result is optimal camera function, day or night. The slow shutter control feature is standard on all color and day/night PressureDome cameras. This feature automatically reduces the shutter speed to as little as one second, increasing sensitivity by more than 50 times, even in the darkest conditions.

Remote control, configuration, and updates can be performed over the video cable (coax or passive UTP) when using Bilinx-compatible control and configuration devices (such as VP-CFGSFT configuration tool or LTC 8016 Allegiant Bilinx Interface).

The menu for these devices can display multiple languages, including: English, French, German, Spanish, Portuguese and Polish.

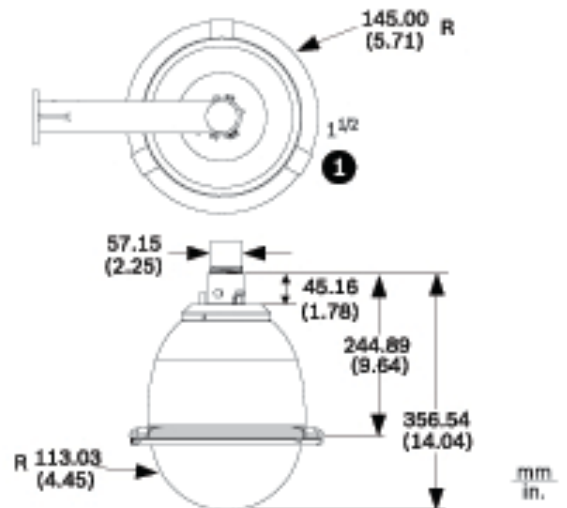
Installation/Configuration Notes



- 01 Pressurized Housing
- 02 M – 18x Monochrome
C – 18x Color
D – 18x Day/Night
E – 26x Day/night
- 03 1 – 12 VAC NTSC
2 – 230 VAC PAL
5 – 24 VAC PAL¹
6 – 24 VAC NTSC¹
- 04 F – Fiber Optic²
_ – Standard

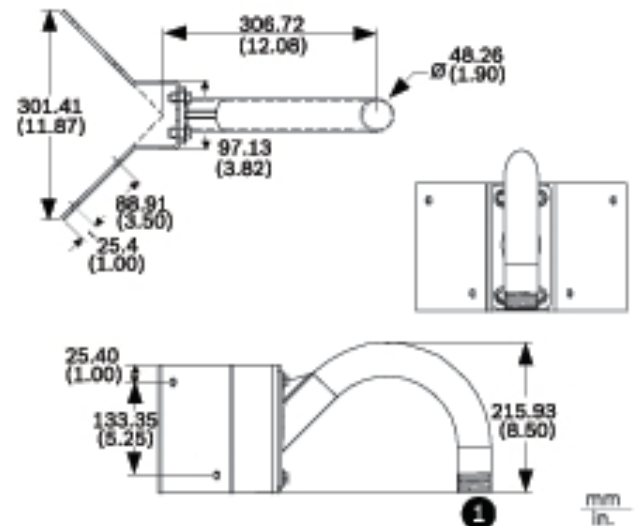
Note The following ordering chart applies only to orders from the Americas. For customers in Europe, the Middle East or in Africa, please contact your local Bosch representative.

1. No transformer included. Customer must supply 24 VAC, 59 W transformer (ENV-PSU or equivalent). Not available with fiber optic option.
2. Fiber option only available in kits with transformers. For kits without transformers, an LTC 4628 may be used with standard ENV kit. Each fiber kit requires an LTC 4629 at the system.



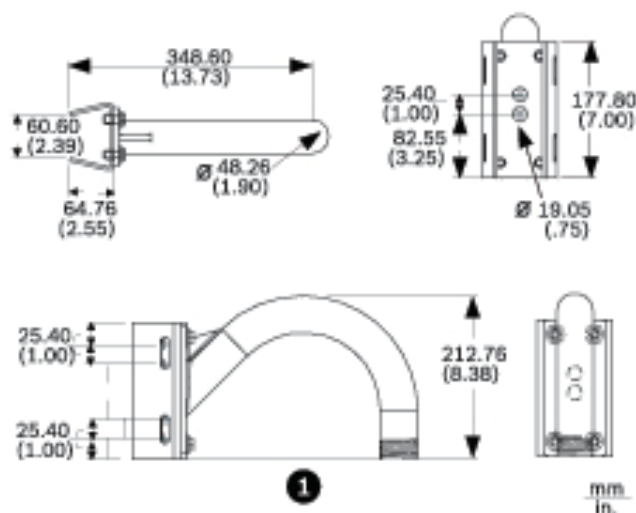
PRS-Housing

- 01 NPT Coupling



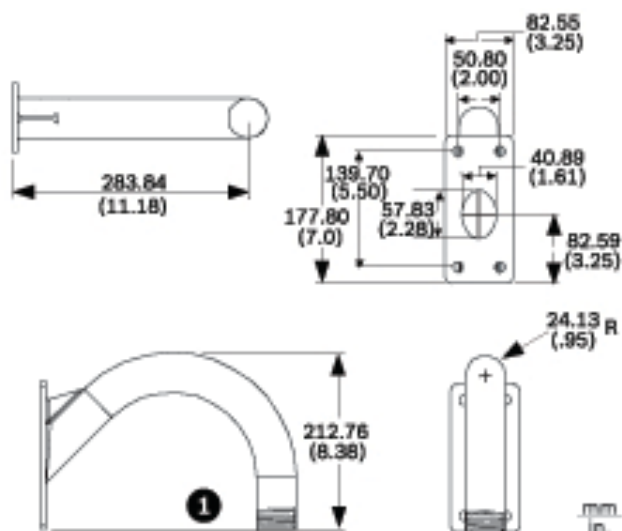
PRS-Corner

- 01 1 1/2 in. NPT Thread



PRS-Mast

01 1 1/2 in. NPT Thread



PRS-Wall

01 1 1/2 in. NPT Thread

Technical Specifications

Camera 18x Color/18x Day/Night

Imager	1/4 in. IT CCD (752 x 582 PAL) / (768 x 494 NTSC)
Lens	18x Zoom (4.1–73.8 mm) F1.4 to F3.0
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.7° to 48°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off / Auto (with adjustable limit)
Synchronization	Line-lock (–120° to 120° vertical phase adjust) or internal crystal

Aperture Correction	Horizontal and vertical
Digital Zoom	12x
Horizontal Resolution	470 TVL (NTSC) / 460 TVL (PAL)

Sensitivity (Minimum Usable Video: 20 IRE)

	18x Color	18x Day/Night
Day Mode w/Slow Shutter Off	0.25 lux	0.25 lux
Night Mode w/Slow Shutter Off	—	0.031 lux
Day Mode w/Slow Shutter On	0.0033 lux	0.0033 lux
Night Mode w/Slow Shutter On	—	0.0005 lux

Sensitivity (Usable Video: 50 IRE)

	18x Color	18x Day/Night
Day Mode w/Slow Shutter Off	0.7 lux	0.7 lux
Night Mode w/Slow Shutter Off	—	0.166 lux
Day Mode w/Slow Shutter On	0.0082 lux	0.0082 lux
Night Mode w/Slow Shutter On	—	0.0013 lux
SNR	>50 dB	
White Balance	2000 K to 10,000 K	

Camera 26x Day/Night

Imager	1/4 in. Exview HAD CCD (752 x 582 PAL) / (768 x 494 NTSC)
Lens	26X Zoom (3.5–91.0 mm) F1.6 to F3.8
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.3° to 55°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off / Auto (with adjustable limit)
Synchronization	Line-lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12X
Horizontal Resolution	470 TVL (NTSC) / 460 TVL (PAL)

Sensitivity (Minimum Usable Video: 20 IRE)

Day Mode w/Slow Shutter Off	0.33 lux
Night Mode w/Slow Shutter Off	0.066 lux
Day Mode w/Slow Shutter On	0.0103 lux
Night Mode w/Slow Shutter On	0.0021 lux

Sensitivity (Usable Video: 50 IRE)

Day Mode w/Slow Shutter Off	1 lux
Night Mode w/Slow Shutter Off	0.26 lux
Day Mode w/Slow Shutter On	0.026 lux
Night Mode w/Slow Shutter On	0.0052 lux
SNR	>50 dB
White Balance	2000 K to 10,000 K

Camera 18x Monochrome

Imager	1/4 in. IT CCD (752 x 582 CCIR) / (768 x 494 EIA)
Lens	18x Zoom (4.1–73.8 mm) F1.4 to F3.0
Focus	Automatic with manual override
Iris	Automatic with manual override
Field of View	2.7° to 48°
Video Output	1.0 Vp-p, 75 Ohm
Gain Control	Off / Auto (with adjustable limit)
Synchronization	Line-lock (–120° to 120° vertical phase adjust) or internal crystal
Aperture Correction	Horizontal and vertical
Digital Zoom	12X
Horizontal Resolution	520 TVL (typical)
Sensitivity (Minimum Usable Video: 20 IRE)	0.031 lux
Sensitivity (Usable Video: 50 IRE)	0.1 lux
SNR	>50 dB
White Balance	N/A

Mechanical

Weight	5.9 kg (13 lb)
Pan/Tilt	360° Continuous pan, –5° to 90° tilt from horizontal plane
Pre-position Speed	360°/sec., ±0.50° accuracy
Variable Speed	120°/sec.

Environmental

Humidity	0% to 100% relative, condensing
Ingress Protection	IP67 (NEMA 4X)
Operating Temp.	–40°C to 60°C (–40°F to 140°F)
Storage Temp.	–40°C to 60°C (–40°F to 140°F)

Accessories

ENV-PSU1 / ENV-PSU2	Outdoor power supply box (120/230 VAC transformer)
ENV-PSU1F / ENV-PSU2F	Outdoor power supply box (120/230 VAC transformer and fiber optics)
PRS-Wall	Wall mount
PRS-Corner	Corner mount
PRS Mast	Mast mount

Miscellaneous

Sectors/Titling	16 Independent sectors with 16-character titles/sector
Camera Setup/Control	Bi-Phase or Bilinx (coax)
Pre-positions	99, each with 16-character titles
Guard Tours	Two (2) types of tours: <ul style="list-style-type: none"> Recorded tours - two (2), with a total duration of 15 minutes. Preset tour - one (1), consisting of up to 99 consecutive scenes
Addressing	FastAddress remote addressing or 4-digit thumbwheel
Agency Listings	CE, UL
Mount	1 1/2-in. PT threaded pipe only
Pressure	5 psi max. Unit ships non-pressurized. Installer must purge and pressurize after installation.

User Connections

Power (Camera)	21–28 VAC, 50/60 Hz, 15 W max.
Power (Heater)	21–28 VAC, 50/60 Hz, 44 W max.
Bi-Phase ±	Control data
Video	BNC
Alarm input (1)	Programmable for "Normally Open" or "Normally Closed"
Nitrogen Fill Valve	Schraeder type valve

Ordering Information

PRS-MAST Pressure Dome Gooseneck Wall mount, with mast (pole) adapter, white	PRS-MAST
PRS-WALL Pressure Dome Gooseneck wall mount, white	PRS-WALL
PRS-CORNER Pressure Dome Gooseneck wall mount, with corner adapter, white	PRS-CORNER
PRS-HOUSING Pressure Dome housing only, 24 VAC, 50/60 Hz, pipe mount	PRS-HOUSING

AutoDome Accessories



Features

- ▶ Alternate bubble colors
- ▶ Rugged bubble option
- ▶ Power supplies
- ▶ Fiber optics
- ▶ AutoTrack option

Bosch offers a full line of accessories to customize and complete your AutoDome® surveillance system for effective and discreet positioning. Select from a variety of bubble options, various indoor or outdoor power supplies and mounts for effective, discrete positioning.

Bubble options include clear, tinted, and a selection of metallic finishes, each offering varying levels of covertness, aesthetics and sensitivity. We also offer the exclusive rugged bubble option to protect your AutoDome camera from vandalism. Designed to meet stringent strength standards without compromising optical clarity, the rugged bubble can withstand the impact equivalent of a 4.536 kg (10 lb) weight dropped from a height of 3.048 m (10 ft).

Optional power supplies are available for connecting multiple domes; fiber optics are offered as a transmission medium to bridge long distances in hostile electromagnetic environments like subways and railways.

AutoTrack is the next generation of motion detection. AutoTrack not only senses movement but also follows it, leaving guards' hands free for other responsibilities. No more missing the action. No more focusing on an intruder only to have him walk out of the frame. AutoTrack detects motion, zooms in on the target, and tracks it.

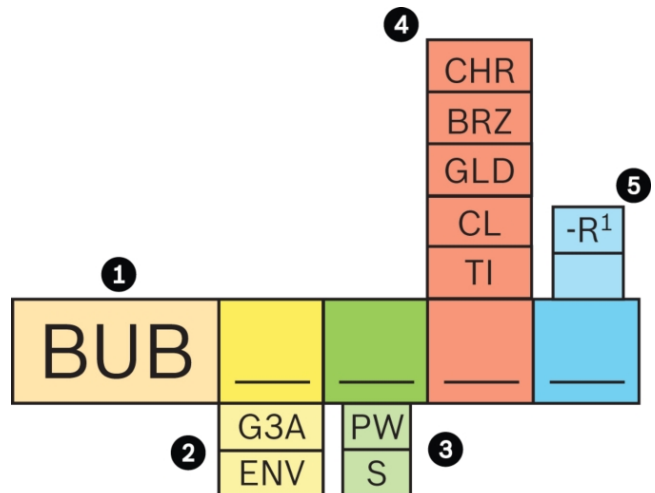
Outdoor Power Supplies

These unique units are designed to be mounted as a self contained weatherproof box, or integrated as part of the EnviroDome's Pendant Arm. There are a variety of models available for each style including such options as Surge Protection, Integrated Fiber Optic Module, and AutoTrack.

Indoor Power Supplies

We recommend the new AutoDome Power Supplies. These are designed to drive 4, 8, or 16 domes from a single box. They deliver 28 VAC rather than the typical 24 VAC to allow for longer distance runs.

Installation/Configuration Notes



Ordering Guide

- 1 AutoDome Bubble Replacement
- 2 G3A – Indoor G3
ENV – EnviroDome
- 3 PW – Pendant White²
S – Suspended ceiling
- 4 CHR – Chrome (only available for G3A indoor units)
BRZ – Bronze (only available for G3A indoor units)
GLD – Gold (only available for G3A indoor units)
CL – Clear
TI – Tint
- 5 R¹ – Rugged
– Standard

1. Rugged versions are available in Clear or Tint only.

2. Pendant versions include lower housing.

Note The Rugged Bubble option is ordered separately, as a replacement component, available in Clear or Tinted.



Different types of bubbles



Integrated pendant arm



Indoor Power Supply Boxes

Technical Specifications

Bubble Specifications

Sensitivity Loss:

Clear = 0.0 F-Stop

Tinted = 0.5 F-Stop

Chrome = 2.75 F-Stop

Gold = 1.75 F-Stop

Bronze 1.0 F-Stop

Rugged Bubble Specifications

Sensitivity Loss	Clear = 0 F-Stop, Tinted = 0.5 F-Stop
Material	3 mm thick Polycarbonate
Impact Test Rating	100 ft lb
Design Rating	Exceeds UL 1598 horizontal impact standard for lighting fixtures by a factor of 10

Indoor Power Supply Specifications³

Electrical	120 VAC input, 28 VAC, 60 Hz output	
Features	On-board surge suppression; On/Off switch	
Models Available	G3A-PSU1-4 (3.5 A total current) G3A-PSU1-8 (6.5 A total current) G3A-PSU1-16 (13 A total current)	
Dimensions	4 Dome	8 and 16 Dome
Length	21 cm (8.5 in.)	28.5 cm (11.5 in.)
Height	23.5 cm (9.5 in.)	29 cm (11.25 in.)
Width	9.5 cm (3.75 in.)	9 cm (3.5 in.)
Certificates	UL, CE	

3. Not available in Europe, Middle East and Africa.

EnviroDome (Outdoor) Power Supply Specifications

All ENV-PSU or PA Models Include:

115 VAC, 60 Hz, 630 mA input, or 230 VAC, 50 Hz, 350 mA input
Two (2), 24 VAC fused outputs
2.8 A (63 VA) supply current
Output fuses are rated at 1.6 A (for dome power) and 2.0 A (for heater power)
AC power LED indicator
IP 66 / NEMA 4X
Operating temp range: -40°C to 50°C (-40°F to 122°F)
Humidity 0% to 100% condensing
UL, CE certified

Surge Protection Models

Protection on Video	Peak current 24 A, peak power 400 W
Protection on RS-232/RS-485	Peak current 500 A, surge energy is 4.4 Joules
Protection on Bi-Phase Lines	Peak current 500 A, surge energy is 2.2 Joules
Protection on the Power	Peak current 2000 A, surge energy is 33.4 Joules

Fiber Optic Models

Optical Fiber Compatibility	50/125 nm, 62.5/125 nm, low loss multi-mode glass fiber, rated for a minimum system bandwidth of 20 MHz (Video 850 nm / Data 1300 nm)
Max. Distance	4 km (2.5 miles)
Compatible Receiver	LTC 4629 Series

Ordering Table

Integrated Wall Arm	No Fiber Optics	W/Fiber Optics
24 VAC (no transformer)	ENV-PA0	N/A
120 VAC	ENV-PA1	ENV-PA1F
230 VAC	ENV-PA2	ENV-PA2F
120 VAC Surge Protection	ENV-PA1-SP	ENV-PA1F-SP
230 VAC Surge Protection	ENV-PA2-SP	ENV-PA2F-SP

Stand-Alone Box	No Fiber Optics	W/Fiber Optics
24 VAC (no transformer)	ENV-BOX	N/A
120 VAC	ENV-PSU1	ENV-PSU1F
230 VAC	ENV-PSU2	ENV-PSU2F
120 VAC Surge Protection	ENV-PSU1-SP	ENV-PSU1F-SP
230 VAC Surge Protection	ENV-PSU2-SP	ENV-PSU2F-SP

AutoTrack Specifications

AutoTrack circuitry is located on the power supply board, and has the same environmental specifications and listings noted above under the EnviroDome Power Supply Specifications heading, located above. For ordering information, see the Ordering Table above and add a "T" at the end of the part number. (Not available on surge protection models.) Stand-alone Tracker Unit for use with existing G3 Dome (version 5.0 or higher); order Part # G3A-TRKR.

Motion Detected	Target must be between 30% and 70% of the image height
Settings	On/Off
Compatible Dome Functions	Preset tours, guard tours, with a minimum of one (1) sec. pauses in motion
Optical Zoom Range	Based on camera angle does not enter digital zoom range
Multiple Target Differentiation	Target with largest amount of motion

Ordering Information

ENV-PA-BOX EnviroDome Box for Pendant Arm for pendant arm, no arm	ENV-PA-BOX
LTC 9230/01 Flat Roof Mount Adapter for mounting a unit in an upright position on a flat surface for roof parapet mount LTC 9230/00	LTC 9230/01
LTC 5136/51 AutoDome Controller with 16 outputs for AutoDomes or for Allegiant Receiver/Drivers units, 230 VAC, 50/60 Hz	LTC 5136/51
LTC 9540/00 G3/EnviroDome Pendant Wall Mount white	LTC 9540/00
LTC 9543/00 G3/EnviroDome Pendant Pipe Mount white	LTC 9543/00
LTC 9543/01 G3 Pendant Pipe Mount Kit excl. pipe, charcoal gray	LTC 9543/01
Software Options	
VP-CFGSFT Bilinx Configuration Tool configuration software with USB adapter	VP-CFGSFT

LTC 5136 AutoDome Controller



Features

- ▶ Controls a single AutoDome Camera System or Standard Allegiant Receiver/Drivers
- ▶ Up to 16 individual Bi-Phase control code outputs available
- ▶ Controls all AutoDome System features including auto playback
- ▶ Small, compact design
- ▶ Ergonomic layout for single-handed control

The LTC 5136 AutoDome Controller provides complete control of the AutoDome system's advanced features, including proportional speed control, auto tour, 99 presets, and full pan/tilt/zoom operation - all from a single one-handed control unit.

Functions

The LTC 5136 AutoDome Controller is compatible with the standard Allegiant LTC 856x Series Receiver/Drivers, using the Allegiant Bi-Phase control code.

Each of the 16 Bi-Phase control code outputs provided by this control system is capable of transmitting data up to 1.5 km (5000 ft) using 1 mm² (18 AWG) shielded twisted pair cable.

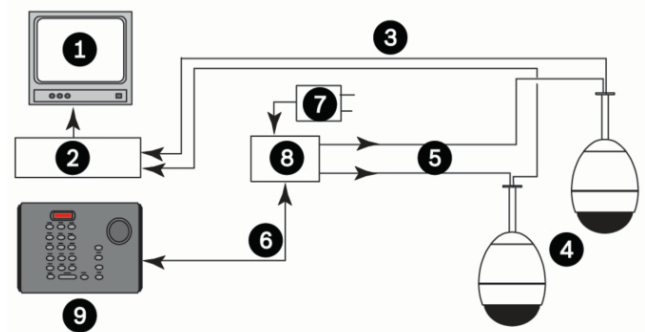
Wiring configurations consisting of either 'star' or 'daisy' chain can be used. In a 'star' configuration, a single camera can be connected to each of the 16 outputs. When using 'daisy chain' wiring configurations, where a single data cable is 'looped' through each of the cameras, up to 8 cameras can be connected to an output.

The LTC 5136 AutoDome Controller includes a 22-key control unit with integral vector-solving pan/tilt/zoom joystick, interface box, and an appropriate power supply.

Certifications and Approvals

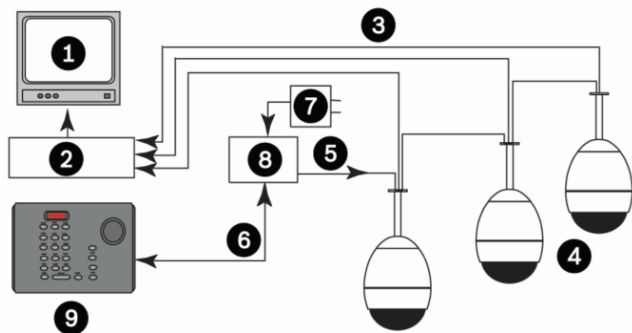
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Typical Installation

- 1 Video Monitor
- 2 DVR or Video Switcher
- 3 Video Coax Cable
- 4 Typical AutoDome Camera or Allegiant Receiver/Driver Units
- 5 Up to 16 Bi-Phase Control Code Outputs
- 6 RS-232 Data and Power
- 7 Power Supply Adapter (Supplied)
- 8 Data Converter Unit
- 9 AutoDome Controller



Typical Multiple Camera Sites using Daisy Chain Bi-Phase Control Code Wiring Configuration

- 1 Video Monitor
- 2 DVR or Video Switcher
- 3 Video Coax Cable
- 4 Typical AutoDome Cameras or Allegiant Receiver/Driver Units
- 5 Typical Bi-Phase Control Code Output
- 6 RS-232 Data and Power
- 7 Power Supply Adapter (Supplied)
- 8 Data Converter Unit
- 9 AutoDome Controller

Technical Specifications

Electrical

Includes Control Unit and Interface Box with applicable power supply.

Model No.	Rated Voltage	Voltage Range	Power at Rated Voltage
LTC 5136/51	230 VAC 50/60 Hz	195.5 to 253	6 W
LTC 5136/61	120 VAC 50/60 Hz	105 to 132	6 W

Transmission Distance

1.5 km (5000 ft) using 1 mm² (18 AWG) shielded twisted pair cable (Belden 8760 or equivalent)

Control Unit

Indicators	Camera/entry data; 4-digit 7-segment LED display
Controls	Set, User, Camera, Shot, On, Off, Enter, Clear, Focus, Iris, 10-Digit Numeric Keypad, Joystick
Connector	RJ-11
Finish	Charcoal
Dimensions (W x D x H)	220 x 155 x 101 mm (8.67 x 6.11 x 4.00 in.)
Weight	0.55 kg (1.2 lb)

Interface Box

Indicator	Green data LED
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Connectors

Data In	9-pin D connector
Bi-Phase Output	Removable terminal blocks with three connections: "+", "-", and "S" (Shield) for each of the sixteen Bi-Phase code outputs
Control Unit Connection	RJ-11
Control Unit to Interface Box Cable	3 m (10 ft) with RJ-11 connector
Power Connector	Bayonet type
Case	Black plastic with metal mounting flanges
Dimensions - Overall (W x D x H)	154 x 132 x 38 mm (6.08 x 5.25 x 1.5 in.)
Weight	0.132 kg (0.7 lb)

Environmental

Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-10°C to 50°C (14°F to 122°F)
Humidity	10%–90%, non-condensing

Ordering Information

LTC 5136/51 AutoDome Controller **LTC 5136/51**
with 16 outputs for AutoDomes or for Allegiant Receiver/Drivers units, 230 VAC, 50/60 Hz

LTC 5136/61 AutoDome Controller **LTC 5136/61**
with 16 outputs for AutoDomes or for Allegiant Receiver/Drivers units, 110 VAC, 50/60 Hz

MIC Series 500 Classic



Features

- ▶ **Rated to an industry leading IP68**
- ▶ **Multiple camera programming through Cam-set software**
- ▶ **Many mounting and viewing options**
- ▶ **Easy set-up and configuration through the powerful on-screen display**
- ▶ **Multi-protocol operation**
- ▶ **On-site canting ability**
- ▶ **Ultra long life silicone wiper**

The MIC Series 500 Classic combines cutting-edge technology with the latest production techniques to provide a class-leading feature set in an economical package. The MIC Series 500 Classic range takes high quality surveillance to new levels of excellence.

As a best-fit camera for virtually any security application, it can be installed in the harshest of environments. Thanks to its IP68-rated aluminum casing, the MIC Series 500 Classic functions perfectly in the most demanding conditions. This tough casing provides protection from the elements and physical attack. Coupled with an optically perfect flat viewing window, integrated long life silicone wiper and a reversible rain shield, ensures high quality images regardless of the installed environment.

The brushless-motor technology offers ultra-reliable, whisper-quiet operation with full 360° continuous rotation pan and 267° tilt control for exceptional viewing capability. Small increment pan/tilt speeds from just 0.2° per second to 120° per second gives the user precise control. This speed control is especially important when used with video analytic systems, particularly for tracking subjects when fully zoomed in.

On-screen menus allow camera set-up from the control room via a remote keyboard. The MIC Series 500 Classic is compatible with all leading control systems and has a wide choice of protocols available.

A choice of true day/night camera modules offering up to 36x optical zoom (12x digital) are available, providing 540 TV lines (PAL). Preset positions, preset tours and random tours ensure flexible surveillance options.

The MIC Series 500 Classic features twist-lock canting functionality. This allows the camera to be securely canted on-site at 45° for pole mount applications allowing the base of the pole to be viewed. The sheer flexibility of mounting options allows the camera to be installed upright, inverted or canted to achieve the perfect field of view.

Functions

Rated to an industry leading IP68

With no dust ingress and the ability to withstand sustained periods of immersion under water, the MIC Series 500 Classic is perfectly suited for installation in even the most unforgiving environments.

Brushless motor technology

Ultra-reliable brushless motors provide whisper-quiet operation and smooth control.

Host of mounting and viewing options

Faultless operation in upright, inverted or canted positions gives the user a host of mounting and viewing possibilities. The twist-lock canting feature allows the MIC Series 500 Classic to be canted to 45° on site. This allows, for example, the base of the pole to be viewed in upright pole-mounted applications.

Easy set-up

Camera settings can be adjusted via the on-screen menu from a control room via a remote keyboard.

Multi-protocol operation

Compatible with virtually any control equipment available today, the MIC Series 500 Classic range seamlessly integrates with the vast majority of security systems.

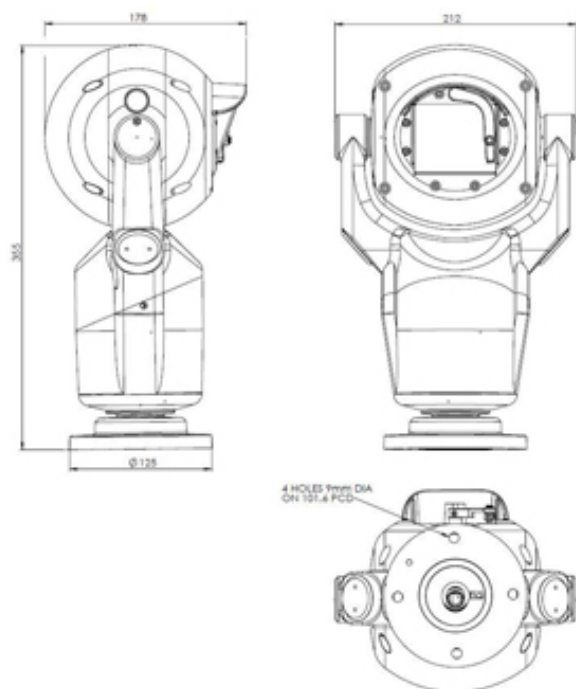
Applications:

- General CCTV
- Town centers
- ANPR systems
- Vandalism prone areas
- Extreme environments
- Rapid deployment
- High security
- Prestigious developments
- Broadcast
- Marine/costal
- Architectural

Certifications and Approvals

Region	Certification	
Europe	CE	2004/108/EC, 2006/95/EC
Global	IP Rating	
USA	UL	UL 60950-1, 2nd Edition:2007
	FCC	CFR 47 FCC part 15:2009, Class B
Canada	CSA	CAN/CSA-C22.2 No. 60950-1-07
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4 and EN61000-3-2 & 3-3 and EN55022	
Product Safety	Complies with CE regulations, UL, EN, and IEC Standards 60950-1 & 22	
Weatherproofing	IP68	

Installation/Configuration Notes



MIC Series 500 Classic Dimensional Drawing

Technical Specifications

Camera Module

Image Sensor	1/4 in. Exview CCD (WDR)
Horizontal Resolution	540 TVL PAL (wide)
Filter	Automatic mechanical IR cut filter
Focus System	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Signal to Noise Ratio	50 dB or more

Back Light Compensation On/Off (BLC)

White Balance Automatic

Automatic Gain Control (AGC) -3 to -28 dB, -2 dB steps

Aperture Control 16 Steps

18x Optical Zoom Module

Lens F=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0

Zoom 18x optical (12x digital)

Angle of View 48° (wide) to 2.8° (tele)

Minimum Illumination 1/60 s mode, 0.7 lx (typical) (F1.4, 50 IRE)
1/4 s mode, 0.07 lx (typical) (F1.4, 50 IRE)

Shutter Speed 1/4 to 1/10,000 s (20 steps) PAL

36x Optical Zoom Module

Lens F=3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5

Zoom 36x optical (12x digital)

Angle of View 57.8° (wide) to 1.7° (tele)

Minimum Illumination 1/60 s mode: 1.4 lx (typical) (F1.6, 50 IRE)
1/4 s mode: 0.1 lx (typical) (F1.6, 50 IRE)

Shutter Speed 1/3 to 1/10,000 s (20 steps) PAL

Operational

Auto Flip Yes

Manual Flip Yes

E-flip Yes, E-flip enables the camera module to invert the image

Presets 64 telemetry presets accurate to 0.08° utilizing resolver technology using the on-screen menu or via cam-set,
Up to 10 camera module presets (Sony sets) to allow ANPR, color correction etc.

Preset Tours Four (4) tours each with up to 32 presets

Pattern Tours Two (2) tours

Sector Titles 64 sectors, 20 characters per title

Preset Titles 20-character caption for each of the 64 presets

Home Position Preset 1 or tour

On-screen Menu Most camera functions can be accessed through the on screen menu

Communication and Protocols

Communication RS485 / RS422

Control Protocol FV and Bosch protocols pre-installed. Twin protocol packs including FV/Pelco, FV/VCL, FV/American Dynamics and FV/Kalatel can be loaded using the MIC Universal Camera Setup Software Utility (Cam-set)

Connectivity

MIC Universal Camera Setup Software Utility (Cam-set) Supplied free with each camera, cam-set allows direct connection to a USB equipped PC via the MIC Series PSU or over a full duplex or IP network to provide access to all camera functions and useful diagnostic tools

Video Coaxial via composite cable

Telemetry Twisted pair. Simplex, half and full duplex operation via composite cable

Power Via composite cable

Alarms

Alarm Inputs One (1) tamper input (additional inputs possible with optional alarm card)

Alarm Communication Tamper switch (ground connection)

Mechanical

Drive Unit Brushless, integral pan/tilt motor drive

Pan Angle 360° continuous rotation

Pan Speed Up to 120° per second (variable)

Tilt Angle 267°

Tilt Speed 0.2° to 80° per second (variable)

Speed Control Closed loop electronics

Preset Accuracy Better than 0.08°

Proportional Pan/Tilt to Zoom Yes

Construction

Construction Material Cast solid aluminum with anti-corrosion pre-treatment

Viewing Window Tempered flat glass

Standard Colors Black (RAL9005) or white (RAL9010)

Standard Finish Powder coated, sand finish

Dimensions (WxHxD)

- Upright and Inverted 212 x 355 x 177 mm (8.35 x 13.98 x 6.97 in.)

- Canted 212 x 312 x 255 mm (8.35 x 12.28 x 10.0 in.)

Weight 7 kg (15.43 lb) including 4 in. pitch circle diameter (PCD) base

Canting Twist Lock canting secured by two security screws

Environmental

Operating Temperature -20 °C to +60 °C (-4 °F to +140 °F)

Weatherproofing IP68

Electrical

Input Voltage 18 VAC

Power Consumption 25 W max. without heater

Options

Camera Module 18x camera module or 36x camera module

Camera Color System PAL

Telemetry Control Card Built-in

Window Wiper Standard

Washer Drive Optional washer kit (MIC-WKT Kit with washer pump drive)

Alarm Card Optional, 8-input with washer pump drive function, fits in MIC Series power supply

Biphase Converter Optional, fits in MIC Series power supply expansion slot (BP-4)

Ordering Information

MIC500ALBUR14618P MIC Series 500 Classic 18x PAL Camera with Integrated Wiper, Black **MIC500ALBUR14618P**
18x, PAL, PTZ camera, black, with an integrated wiper

MIC500ALBUR14636P MIC Series 500 Classic 36x PAL Camera with Integrated Wiper, Black **MIC500ALBUR14636P**
36x, PAL, PTZ camera, black, with an integrated wiper

MIC500ALBUR14618P MIC Series 500 Classic 18x PAL Camera with Integrated Wiper, White **MIC500ALBUR14618P**
18x, PAL, PTZ camera, white, with an integrated wiper

MIC500ALBUR14636P MIC Series 500 Classic 36x PAL Camera with Integrated Wiper, White **MIC500ALBUR14636P**
36x, PAL, PTZ camera, white, with an integrated wiper

Accessories

MIC-24PSU-UL 24 VAC Camera Power Supply **MIC-24PSU-UL**
24 VAC, 50/60 Hz power supply for MIC Series cameras

MIC-115PSU-UL 115 VAC Camera Power Supply **MIC-115PSU-UL**
115 VAC, 60 Hz power supply for MIC Series cameras

MIC-240PSU-UL 240 VAC Camera Power Supply **MIC-240PSU-UL**
240 VAC, 50 Hz power supply for MIC Series cameras

MIC-ALM Alarm and Washer Pump Drive Card **MIC-ALM**
8 Input alarm and washer pump drive card for PSU (Not for IR PSU)

MIC-BP4 Bi-phase Converter **MIC-BP4**
Bi-Phase converter for non-IR versions of MIC series power supply units

MIC-USB485CVTR USB to RS485 Signal Converter **MIC-USB485CVTR**
USB to RS485 signal converter to allow MIC Series cameras to connect to a PC, supplied with each camera

Ordering Information

MIC-501KBD Keyboard Controller Keyboard controller with 3-axis joystick for 1 camera (FV PROTOCOL ONLY)	MIC-501KBD
MIC-516KBD Keyboard Controller Keyboard controller with 3-axis joystick for 1 to 16 cameras (FV PROTOCOL ONLY)	MIC-516KBD
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-DCA-WD Deep Conduit Adapter Deep conduit adapter for 4 in. PCD base - white sand finish, RAL9010	MIC-DCA-WD
MIC-DCA-BD Deep Conduit Adapter Deep conduit adapter for 4 in. PCD base - black sand finish, RAL9005	MIC-DCA-BD
MIC-SCA-WD Shallow Conduit Adaptor Adapter for a MIC-WMB, a MIC-PMB, or a MIC-SPR mount, white sand finish, RAL9010	MIC-SCA-WD
MIC-SCA-BD Shallow Conduit Adapter Adapter for a MIC-WMB, a MIC-PMB, or a MIC-SPR mount, black sand finish, RAL9005	MIC-SCA-BD
MIC-SPR-WD Spreader Plate Aluminum spreader plate suitable for brick-work surface mounting – white sand finish RAL9010	MIC-SPR-WD
MIC-SPR-BD Spreader Plate Aluminum spreader plate suitable for brick-work surface mounting – black sand finish RAL9005	MIC-SPR-BD
MIC-CMB-WD Corner Mount Bracket Corner mount bracket - white sand finish RAL9010	MIC-CMB-WD
MIC-CMB-BD Corner Mount Bracket Corner mount bracket - black sand finish RAL9005	MIC-CMB-BD
MIC-WMB-WD Wall Mount Bracket Wall mount bracket - white sand finish RAL9010	MIC-WMB-WD
MIC-WMB-BD Wall Mount Bracket Wall mount bracket - black sand finish RAL9005	MIC-WMB-BD
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S

Ordering Information

MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S
MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S
MIC-25M-S 25 m Shielded Composite Cable Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-25M-S

MIC Series 400 Camera



Features

- ▶ **Rated to an industry leading IP68**
- ▶ **Brushless motor technology**
- ▶ **Host of mounting and viewing options**
- ▶ **Integrated wiper and heater**
- ▶ **Multi-protocol operation**

The MIC Series 400 camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for security applications that demand the very best performance. Precision engineered to exacting standards, the range offers numerous benefits over the use of traditional dome and PTZ cameras, and comes with a variety of options in order to offer a best-fit solution for virtually any application.

Rated to an industry leading IP68, the compact, vandal-resistant machined aluminum camera housing is suitable for installation in the harshest of environments. Machined from solid aluminum, the MIC Series 400 cameras ensure corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum, used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. Sealed with 'O'-rings, the MIC Series 400 camera can operate submerged up to 1 meter (3.3 feet) underwater by virtue of its design and construction. The optically-perfectly flat viewing window and integrated long-life silicone wiper ensure razor-sharp images are captured in even the most demanding conditions.

The brushless motor technology offers ultra-reliable, whisper-quiet operation with full 360° continuous rotation pan and 320° tilt control for exceptional viewing capability. Small increment pan/tilt speeds from just 0.2° per second to 90° per second give the user precise control. This speed control is especially important when used with video analytic systems, particularly for tracking subjects when fully zoomed in.

A choice of true day/night camera modules offering up to 36x optical zoom (12x digital) are available, providing 470 TVL NTSC/PAL typical (18x module) or 530 TVL NTSC/PAL typical (36x module). When coupled with upright 45-degree canted or inverted mounting capability, the MIC Series 400 camera allows the perfect field of view to be achieved every time.

Functions

Rated to an industry leading IP68

Zero dust ingress and able to withstand sustained periods of immersion under water, the MIC Series 400 aluminum camera is perfectly suited for installation in even the most unforgiving environments.

Brushless motor technology

Ultra-reliable brushless motors provide whisper quiet operation and smooth control.

Host of mounting and viewing options

Faultless operation, either upright or inverted, gives the user a host of mounting and viewing possibilities. A canted option is provided for upright pole-mounted applications, allowing the base of the pole to be viewed.

Integrated wiper and heater

Hot or cold, rain or shine, regardless of the weather, the MIC Series 400 camera is able to capture the highest possible quality image all year round thanks to its integrated long-life silicone wiper and heater.

Multi-protocol operation

Compatible with virtually any control equipment available today, the MIC Series 400 camera will seamlessly integrate within the vast majority of security systems.

Applications:

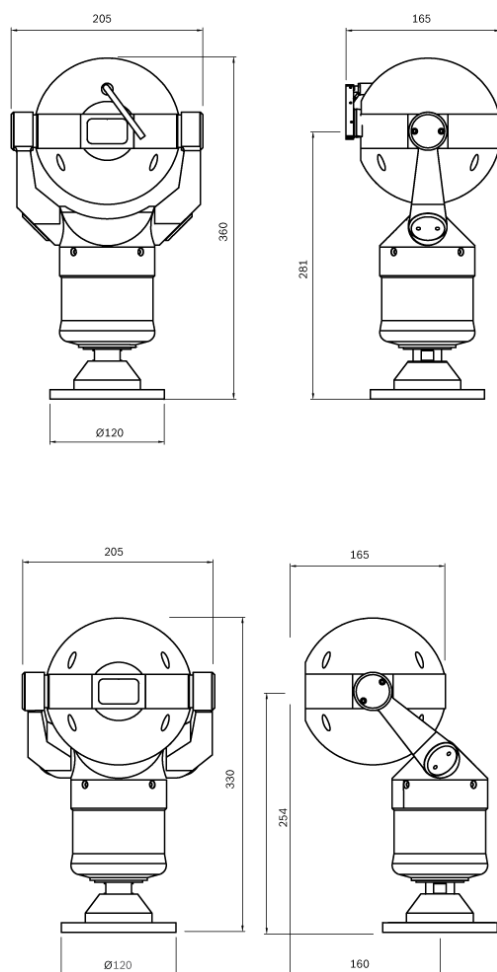
- General CCTV
- Town centers
- Extreme environments
- Rapid deployment
- High security
- Prestigious developments
- Broadcast
- Architectural

Certifications and Approvals

Region	Certification	
Europe	CE	AC08-10-Q012 EMC Directive, Low Voltage Directive
Global	IP Rating	
USA	UL	AC08-10-Q013 UL 60950-1 2nd Edition: 2007
	FCC	AC08-10-Q013 CFR 47 FCC part 15:2009, Class B
Canada	CSA	AC08-10-Q012 CAN/CSA-C22.2 No. 60950-1-07
Electromagnetic Compatibility (EMC)	Complies with FCC part 15, ICES-003, and CE regulations including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007	
Safety	Complies with CE regulations, UL, EN, and IEC standards 60950-1 & 22	
Weatherproofing	IP68	

Installation/Configuration Notes

Dimensions



Technical Specifications

Camera Module

Image sensor	1/4 in EXview CCD (WDR 36x only)
Horizontal resolution	18x module, 470 TVL NTSC/PAL typical; 36x module, 530 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x Optical Zoom Module

Lens	F=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48° (wide) to 2.8° (tele)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL) 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL) 0.01 lux (F1.4, 1/4s NTSC, 1/3s PAL ICR on)
Shutter speed	1/1 to 1/10,000 s (22 steps) NTSC, PAL

36x Optical Zoom Module

Lens	F=3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (wide) to 1.7° (tele)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical, F1.6, 50IRE); 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical, F1.6, 50IRE) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000 s (20 steps) NTSC, 1/3 to 1/10,000 s (20 steps) PAL

Operational

Auto flip	Yes
Manual flip	Yes
Dynamic privacy zones	3D privacy masking with infinite zones, (some models, see ordering guide)
Presets	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction etc.)
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch or FV protocol cameras available, additional supported protocols are Pelco D, Kallatel, 360 Vision, American Dynamics, Panasonic, Molynx, VCL, and Vicon. These can be loaded using the MIC-USB485CVTR signal converter and Cam-set via a PC. Biphase control requires a Biphase to RS485 converter (MIC-BP4, available separately) to connect to Bi-phase equipment.

Connectivity

Video	Co-axial via composite cable
Telemetry control card	Built-in
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
MIC Universal Camera Setup Software Utility (Cam-set)	Supplied with each camera, Cam-set allows direct connection to a USB equipped PC via the MIC Series PSU or over a full duplex or IP network to provide access to all camera functions and useful diagnostic tools
USB to RS485 signal converter	Allows MIC Series cameras to connect to a PC (supplied free with MIC Series 400 camera or available separately)
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Brushless, integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	320°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed loop electronics
Preset accuracy	Better than 0.08°
Proportional Pan/Tilt to Zoom	Yes

Construction

Construction material	Machined aluminum
Viewing window	Tempered flat glass
Window wiper	Standard, long-life silicone wiper
Heater	Standard
Standard colors	Black(RAL9005), Gray (RAL7001) or White (RAL9003)
Standard finish	Alochrom 1200 surface treatment with powder coat paint.
Dimensions (WxHxD)	205 x 360 x 165 mm (8.07 x 14.17 x 6.50 in.) (upright and inverted)

Weight	5.5 kg (12 lb) including 4-in. pitch circle diameter (PCD) base
Configurations available	Upright mount or upright canted at 45° mount. (Inverted mount is possible using software setting and upright camera.)

Environmental

Operational temperature	-40 °C to +50 °C (-40 °F to +122 °F)
Weather proofing	IP68

Electrical

Input voltage	18 VAC
Power consumption	25.2 W max. with heater off 37 W max. with heater on

Ordering Information

MIC400ALBCW13518P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Black, Canted, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALBCW13518P
MIC400ALBCW13536P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Black, Canted, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALBCW13536P
MIC400ALBCW13618P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Black, Canted, FV Protocol with integrated wiper and heater.	MIC400ALBCW13618P
MIC400ALBCW13636P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Black, Canted, FV Protocol with integrated wiper and heater.	MIC400ALBCW13636P
MIC400ALBUW13518P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Black, Upright, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALBUW13518P
MIC400ALBUW13536P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Black, Upright, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALBUW13536P
MIC400ALBUW13618P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Black, Upright, FV Protocol with integrated wiper and heater.	MIC400ALBUW13618P
MIC400ALBUW13636P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Black, Upright, FV Protocol with integrated wiper and heater.	MIC400ALBUW13636P

Ordering Information

MIC400ALGCW13518P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Grey, Canted, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALGCW13518P
MIC400ALGCW13536P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Grey, Canted, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALGCW13536P
MIC400ALGCW13618P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Grey, Canted, FV Protocol with integrated wiper and heater.	MIC400ALGCW13618P
MIC400ALGCW13636P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Grey, Canted, FV Protocol with integrated wiper and heater.	MIC400ALGCW13636P
MIC400ALGUW13518P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Grey, Upright, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALGUW13518P
MIC400ALGUW13536P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Grey, Upright, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALGUW13536P
MIC400ALGUW13618P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, Grey, Upright, FV Protocol with integrated wiper and heater.	MIC400ALGUW13618P
MIC400ALGUW13636P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, Grey, Upright, FV Protocol with integrated wiper and heater.	MIC400ALGUW13636P
MIC400ALWCW13518P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, White, Canted, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALWCW13518P
MIC400ALWCW13536P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, White, Canted, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALWCW13536P
MIC400ALWCW13618P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, White, Canted, FV Protocol with integrated wiper and heater.	MIC400ALWCW13618P
MIC400ALWCW13636P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, White, Canted, FV Protocol with integrated wiper and heater.	MIC400ALWCW13636P

Ordering Information

MIC400ALWUW13518P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, White, Upright, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALWUW13518P
MIC400ALWUW13536P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, White, Upright, FV Protocol with integrated wiper, heater and privacy function.	MIC400ALWUW13536P
MIC400ALWUW13618P MIC Series 400 Aluminum Aluminum 18X, PAL, PTZ camera, White, Upright, FV Protocol with integrated wiper and heater.	MIC400ALWUW13618P
MIC400ALWUW13636P MIC Series 400 Aluminum Aluminum 36X, PAL, PTZ camera, White, Upright, FV Protocol with integrated wiper and heater.	MIC400ALWUW13636P
MIC400ALBCP13518N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Black, Canted, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALBCP13518N
MIC400ALBCP13536N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Black, Canted, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALBCP13536N
MIC400ALBCP13618N MIC Series 400 Aluminum Aluminum, 18X, NTSC, PTZ camera, Black, Canted, Bosch Protocol with integrated wiper and heater.	MIC400ALBCP13618N
MIC400ALBCP13636N MIC Series 400 Aluminum Aluminum, 36X, NTSC, PTZ camera, Black, Canted, Bosch Protocol with integrated wiper and heater.	MIC400ALBCP13636N
MIC400ALBUP13518N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Black, Upright, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALBUP13518N
MIC400ALBUP13536N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Black, Upright, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALBUP13536N
MIC400ALBUP13618N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Black, Upright, Bosch Protocol with integrated wiper and heater.	MIC400ALBUP13618N
MIC400ALBUP13636N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Black, Upright, Bosch Protocol with integrated wiper and heater.	MIC400ALBUP13636N

Ordering Information		
MIC400ALGCP13518N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Grey, Canted, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALGCP13518N	
MIC400ALGCP13536N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Grey, Canted, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALGCP13536N	
MIC400ALGCP13618N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Grey, Canted, Bosch Protocol with integrated wiper and heater.	MIC400ALGCP13618N	
MIC400ALGCP13636N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Grey, Canted, Bosch Protocol with integrated wiper and heater.	MIC400ALGCP13636N	
MIC400ALGUP13518N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Grey, Upright, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALGUP13518N	
MIC400ALGUP13536N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Grey, Upright, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALGUP13536N	
MIC400ALGUP13618N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, Grey, Upright, Bosch Protocol with integrated wiper and heater.	MIC400ALGUP13618N	
MIC400ALGUP13636N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, Grey, Upright, Bosch Protocol with integrated wiper and heater.	MIC400ALGUP13636N	
MIC400ALWCP13518N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, White, Canted, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALWCP13518N	
MIC400ALWCP13536N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, White, Canted, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALWCP13536N	
MIC400ALWCP13618N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, White, Canted, Bosch Protocol with integrated wiper and heater.	MIC400ALWCP13618N	
MIC400ALWCP13636N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, White, Canted, Bosch Protocol with integrated wiper and heater.	MIC400ALWCP13636N	

Ordering Information		
MIC400ALWUP13518N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, White, Upright, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALWUP13518N	
MIC400ALWUP13536N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, White, Upright, Bosch Protocol with integrated wiper, heater and privacy function.	MIC400ALWUP13536N	
MIC400ALWUP13618N MIC Series 400 Aluminum Aluminum 18X, NTSC, PTZ camera, White, Upright, Bosch Protocol with integrated wiper and heater.	MIC400ALWUP13618N	
MIC400ALWUP13636N MIC Series 400 Aluminum Aluminum 36X, NTSC, PTZ camera, White, Upright, Bosch Protocol with integrated wiper and heater.	MIC400ALWUP13636N	
Accessories		
MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL	
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL	
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL	
MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4	
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB	
MIC-USB485CVTR USB to RS485 Signal Converter USB to RS485 signal converter to allow MIC Series cameras to connect to a PC, supplied with each camera	MIC-USB485CVTR	
MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM	
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT	
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20	
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50	
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60	

Ordering Information

MIC-2M-S 2 m Shielded Composite Cable MIC-2M-S

Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC-10M-S 10 m Shielded Composite Cable MIC-10M-S

Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC-20M-S 20 m Shielded Composite Cable MIC-20M-S

Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC-25M-S 25 m Shielded Composite Cable MIC-25M-S

Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC Series 400 Infra-red Camera



Features

- ▶ **Twin integrated IR illuminators**
- ▶ **Brushless motor technology**
- ▶ **Host of mounting and viewing options**
- ▶ **Integrated wiper**
- ▶ **Multi-protocol operation**
- ▶ **Suitable for virtually any application**

The MIC Series 400 Infra-red camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for security applications that demand the very best performance – both during the day and at night. Precision engineered to exacting standards, the range offers numerous benefits over the use of traditional dome and PTZ cameras, and comes with a variety of options in order to offer a best-fit solution for virtually any application.

Rated to an industry leading IP68, the vandal-resistant machined camera housing is suitable for installation in the harshest of environments. Machined from solid aluminum, the MIC Series 400 infra-red cameras ensure corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. Sealed with 'O'-rings, the MIC Series infra-red camera can operate submerged up to 1 meter (3.3 feet) underwater by virtue of its design and construction. The optically-perfect flat viewing window and integrated long-life silicone wiper ensure razor sharp images are captured in even the most demanding conditions.

The twin integrated, long-life, LED Infra-red lamps ensure clear illumination of the camera view to 55 m (180 ft) in total darkness, ensuring high quality images regardless of the lighting conditions.

Brushless motor technology ensures ultra-reliable, whisper-quiet operation. Groundbreaking resolver technology provides pinpoint accuracy and affords the user full 360° continuous rotation pan and 186.6° tilt control.

A choice of true day/night camera modules offering up to 36x optical zoom (12x digital) are available, providing 470 TVL NTSC/PAL typical (18x module) or 530 TVL NTSC/PAL typical (36x module). Preset positions, preset tours, and random tours ensure flexible surveillance options.

The unique camera module preset function allows the module itself to be mapped to a preset button on the remote keyboard. This, for example, allows the camera to be set up for overview purposes and then, at the press of a button, to be used for Automatic Number Plate Recognition (ANPR). The flexible mounting options allow the camera to be installed upright, inverted, or canted to achieve the perfect field of view.

Functions

Twin integrated IR illuminators

Two 850 nm IR illuminators are attached directly to the camera head to provide IR light exactly where it is needed.

Brushless motor technology

Ultra-reliable brushless motors provide whisper-quiet operation and smooth control.

Host of mounting and viewing options

Faultless operation, either upright or inverted, gives the user a host of mounting and viewing possibilities. A canted option is provided for upright pole-mounted applications, allowing the base of the pole to be viewed.

Integrated wiper

Rain or shine, regardless of the weather the MIC Series 400 Infra-red camera is able to capture the highest possible quality image all year round thanks to its integrated long-life silicone wiper.

Multi-protocol operation

Compatible with virtually any control equipment available today, the MIC Series 400 Infra-red camera will seamlessly integrate with the vast majority of security systems.

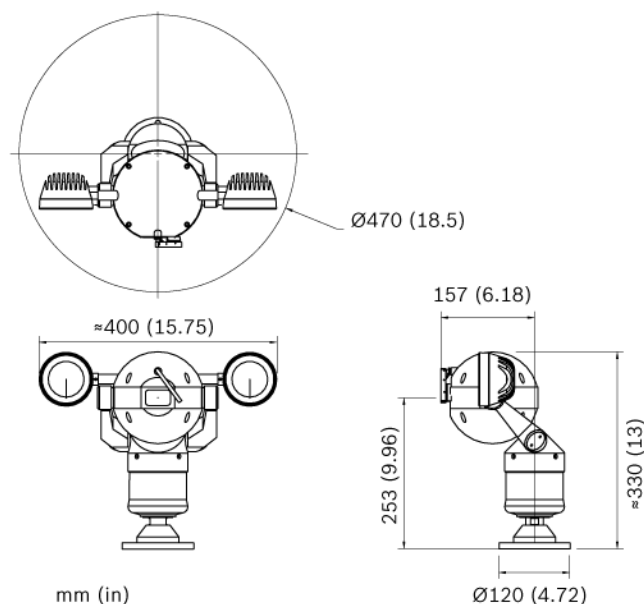
Suitable for virtually any application

The versatility of the MIC Series 400 Infra-red camera makes it suitable for numerous applications, such as:

- General CCTV
- Town centers
- Railway and bus stations
- Rapid deployment
- High security
- Prestigious developments
- Architectural

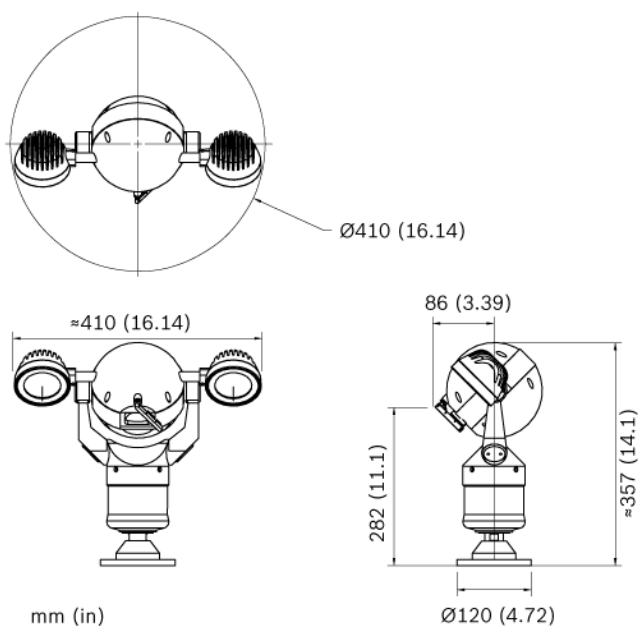
Certifications and Approvals

Region	Certification	
Europe	CE	AC08-10-Q012 EMC Directive, Low Voltage Directive
USA	UL	AC08-10-Q013 UL 60950-1 2nd Edition: 2007
	FCC	AC08-10-Q013 CFR 47 FCC part 15:2009, Class B
Canada	CSA	AC08-10-Q012 CAN/CSA-C22.2 No. 60950-1-07
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007	
Safety	Complies with CE regulations, UL, EN, and IEC Standards 60950-1 & 22	
Weatherproofing	IP68	



Installation/Configuration Notes

Dimensions



Technical Specifications

Camera Module

Image sensor	1/4 in EXview CCD (WDR, 36x only)
Horizontal resolution	18x module, 470 TVL PAL/NTSC typical; 36x module, 530 TVL PAL/NTSC typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x Optical Zoom Module

Lens	F=4.1 mm (widw) to 73.8 mm (tele), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48° (wide) to 2.8° (tele)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL) 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL) 0.01 lux (F1.4, 1/4s NTSC, 1/3s PAL ICR on)
Shutter speed	1 to 1/10,000 s (22 steps) NTSC, PAL

36x Optical Zoom Module

Lens	F=3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (wide) to 1.7° (tele)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical, F1.6, 50IRE) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical, F1.6, 50IRE) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000 s (20 steps) NTSC, 1/3 to 1/10,000 s (20 steps) PAL

IR Illuminators

LED array	High efficiency Surface Mount (SMT) LEDs
No. of LEDs	7 per lamp
Wavelength	850 nm (semi-covert)
Beam angle	30°
IR distance	55 m (180 ft)
Weather proofing	IP68
Construction material	Aluminium with acrylic front window
Power consumption	9 W nominal per lamp on full power, 18 W total for twin IR
Current	700 mA per lamp

Operational

Auto flip	Yes
Manual flip	Yes
Dynamic privacy zones	3D privacy masking with infinite zones (some models, see ordering guide).
Presets	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction etc.)
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Preset 1 or tour

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch or FV protocol cameras available; additional protocols supported are Pelco D, Kalatel, 360 Vision, American Dynamics, Panasonic, Molynx, VCL, and Vicon. These can be loaded using the MIC-USB485CVTR signal converter and Cam-set via a PC. Biphase control requires a Biphase to RS485 converter (MIC-BP3, available separately) to connect to Biphase equipment.

Connectivity

Video	Co-axial via composite cable
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
MIC Universal Camera Setup Software Utility (Cam-set)	Supplied with each camera, Cam-set allows direct connection to a USB equipped PC via the MIC Series PSU or over a full duplex or IP network to provide access to all camera functions and useful diagnostic tools
USB to RS485 signal converter	Allows MIC Series cameras to connect to a PC (supplied free with MIC Series 400 Infra-red camera, or available separately)
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (4 alarm inputs available via the IR power supply unit)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Brushless, integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	186.6°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed loop electronics
Preset accuracy	Better than 0.08°
Proportional Pan/Tilt to Zoom	Yes

Construction

Construction material	Machined aluminum
Viewing window	Tempered flat glass
Window wiper	Standard, long-life silicone wiper
Standard colors	Black(RAL9005), Gray (RAL7001) or White (RAL9003)
Standard finish	Alochrom 1200 surface treatment with powder coat paint.
Dimensions (WxHxD)	403 x 360 x 165 mm (15.2 x 14.2 x 6.5 in.) (upright and inverted)
	403 x 330 x 217 mm (15.2 x 13 x 8.5 in.) (canted)
Weight	6.5 kg (14.3 lb) including 4-in. pitch circle diameter (PCD) base
Configurations available	Upright mount or upright canted at 45° mount. (Inverted mount is possible using software setting and upright camera.)

Environmental

Operational temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Weatherproofing	IP68

Electrical

Input voltage	18 VAC
Power consumption	Max 50 W

Ordering Information

MIC400IRBCW14618P MIC Series 400 Infra-Red Infra-Red, 18X, PAL, PTZ camera, Black, Canted, FV Protocol, with integrated wiper	MIC400IRBCW146 18P
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Accessories

MIC-IR-24PSU-UL 24 VAC Camera/IR Power Supply 24 VAC, 50/60 Hz power supply for MIC Ser- ies cameras with Infrared Illuminators	MIC-IR-24PSU-UL
MIC-IR-115PSU-UL 115 VAC Camera/IR Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras with Infrared Illuminators	MIC-IR-115PSU-UL
MIC-IR-240PSU-UL 240 VAC Camera/IR Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras Infrared Illuminators	MIC-IR-240PSU-UL
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-USB485CVTR USB to RS485 Signal Converter USB to RS485 signal converter to allow MIC Series cameras to connect to a PC, supplied with each camera	MIC-USB485CVTR
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that pro- vides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S
MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that pro- vides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S
MIC-25M-S 25 m Shielded Composite Cable Shielded Composite 25 m cable that pro- vides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-25M-S

MIC Series 400 Public Address Camera



Features

- ▶ **Built-in speakers**
- ▶ **Brushless motor technology**
- ▶ **Host of mounting and viewing options**
- ▶ **Integrated long-life silicone wiper**
- ▶ **Multi-protocol operation**

The MIC Series 400 public address camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for security applications that demand the very best performance. Precision engineered to exacting standards, the range offers numerous benefits over the use of traditional dome and PTZ cameras, and comes with a variety of options in order to offer a best fit solution for virtually any application that requires video and voice communication.

The MIC Series 400 public address camera affords the user directional one-way voice communication thanks to its 100 dB built-in twin speaker system. Coupled with leading PTZ camera technology, the range is suitable for a host of crowd control and public space applications.

Rated to an industry leading IP68 (speakers rated to IP67), the compact, vandal-resistant, machined aluminum camera housing is suitable for installation in the harshest of environments. Machined from solid aluminum, the MIC Series 400 cameras ensure corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum, used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. The optically-

perfect flat viewing window and integrated, long-life silicone wiper ensure razor sharp images are captured in even the most demanding conditions.

The brushless motor technology offers ultra-reliable, whisper-quiet operation with full 360° continuous rotation pan and 196° tilt control for exceptional viewing capability. Small-increment pan/tilt speeds, from just 0.2° per second to 90° per second, give the user precise control. This speed control is especially important when used with video analytic systems, particularly for tracking subjects when fully zoomed in.

A choice of true day/night camera modules, offering up to 36x optical zoom (12x digital) are available, providing either 470 TVL NTSC/PAL typical (18x module) or 530 TVL NTSC/PAL typical (36x module). When coupled with upright or inverted mounting capability, the MIC Series 400 public address camera allows the perfect field of view to be achieved every time.

Functions

Built-in speakers

Twin 100 dB speakers offer directional voice communication in addition to the units' flexible surveillance capability.

Note: Requires suitable third party amplifier and microphone.

Brushless motor technology

Whisper-quiet operation and smooth control is provided through the use of ultra-reliable brushless motors.

Host of mounting and viewing options

Faultless operation either upright or inverted gives the user a host of mounting and viewing possibilities.

Integrated wiper

Hot or cold, rain or shine - regardless of the weather the MIC Series 400 public address camera is able to capture the highest possible quality image all year round thanks to its integrated long-life silicone wiper.

Multi-protocol operation

Compatible with virtually any control equipment available today, the MIC Series 400 public address camera is able to seamlessly integrate with the vast majority of security systems

Applications:

- Town Centers
- Railway Stations
- Events
- Crowd Control
- Rapid Deployment
- Stadia
- Remote Locations
- Airports

Certifications and Approvals

Region	Certification	
Europe	CE	AC08-10-Q012 EMC Directive, Low Voltage Directive
USA	UL	AC08-10-Q013 UL 60950-1 2nd Edition: 2007
	FCC	AC08-10-Q013 CFR 47 FCC part 15:2009, Class B
Canada	CSA	AC08-10-Q012 CAN/CSA-C22.2 No. 60950-1-07
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations, including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007	
Safety	Complies with CE regulations, UL, EN, and IEC Standards 60950-1 & 22	
Weatherproofing	IP68 camera housing, IP67 speakers	

Technical Specifications**Camera Module**

Image sensor	1/4-inch EXview CCD, WDR (36x only)
Horizontal resolution	18x module, 470 TVL NTSC/PAL typical 36x module, 530 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x Optical Zoom Module

Lens	F=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48° (wide) to 2.8° (tele)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL) 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL) 0.01 lux (F1.4, 1/4s NTSC, 1/3s PAL ICR on)
Shutter speed	1/1 to 1/10,000 s (22 steps) NTSC, PAL

36x Optical Zoom Module

Lens	F=3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (wide) to 1.7° (tele)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical, F1.6, 50IRE) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical, F1.6, 50IRE) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000 s (20 steps) NTSC, 1/3 to 1/10,000 s (20 steps) PAL

Twin Speakers

Output	6 W / 8 ohm
Construction	Polyamide UL94 V0
Weatherproofing	IP67
Control	Third party amplifier and microphone

Operational

Auto flip	Yes
Manual flip	Yes
Dynamic privacy zones	Standard, 3D privacy masking with infinite zones
Presets	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction etc.)
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch or FV protocol cameras available; additional protocols supported are Pelco D, Kallatel, 360 Vision, American Dynamics, Panasonic, Molynx, VCL, and Vicon. These can be loaded using the MIC-USB485CVTR signal converter and Cam-set via a PC. Biphase control requires a Biphase to RS485 converter (MIC-BP4, available separately) installed in the MIC Series PSU to connect to Biphase equipment.

Connectivity

Video	Co-axial via composite cable
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
MIC Universal Camera Setup Software Utility (Cam-set)	Supplied with each camera, Cam-set allows direct connection to a USB equipped PC via the MIC Series PSU or over a full duplex or IP network to provide access to all camera functions and useful diagnostic tools
USB to RS485 signal converter	Allows MIC Series cameras to connect to a PC (supplied free with MIC Series 400 public address camera or available separately)

Power Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Brushless, integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	196°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed loop electronics
Preset accuracy	Better than 0.08°
Proportional Pan/Tilt to Zoom	Yes

Construction

Construction material	Machined aluminum
Viewing window	Tempered flat glass
Window wiper	Standard, long-life silicone wiper
Standard color	Black (RAL9005) or Grey (RAL7001)
Standard finish	Alochrom 1200 surface treatment with powder coat paint.
Dimensions (W x H x D)	205 x 420 x 165 mm (8.07 x 16.54 x 6.50 in.) (upright and inverted)
Weight	6.5 Kg (14.33 lb) including 4-in. pitch circle diameter (PCD) base
Configurations available	Upright mount or upright canted at 45° mount. (Inverted mount is possible using software setting and upright camera.)

Environmental

Operational temperature	-20°C to +50°C (-4 °F to 122 °F)
Weatherproofing	IP68 Camera, IP67 for Speakers

Electrical

Input voltage	18 VAC
Power consumption	25.2 W max

Ordering Information**Accessories**

MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL
MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-USB485CVTR USB to RS485 Signal Converter USB to RS485 signal converter to allow MIC Series cameras to connect to a PC, supplied with each camera	MIC-USB485CVTR
MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S
MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S

Ordering Information

MIC-25M-S 25 m Shielded Composite Cable**MIC-25M-S**

Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC Series 400 Stainless Steel Camera



Features

- ▶ **Grade 316L stainless steel construction**
- ▶ **Rated to an industry leading IP68**
- ▶ **Host of mounting and viewing options**
- ▶ **Integrated heater and long-life wiper**
- ▶ **Multi-protocol operation**

The MIC Series 400 stainless steel camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for security applications that demand the very best performance, regardless of the installed environment. Precision engineered to exacting standards, the range offers numerous benefits over the use of traditional dome and PTZ cameras with a range of options available to ensure a best-fit solution is achieved.

Rated to an industry leading IP68, the vandal resistant grade 316L stainless steel camera housing has enhanced corrosion-resistant properties to provide the ultimate protection in the harshest of environments, including marine applications where the salt content of the air is especially high and constant exposure can dramatically reduce the lifespan of traditional camera and dome units.

Featuring an optically-perfect flat viewing window and integrated wiper, the MIC Series 400 stainless steel camera is able to capture razor-sharp images in even the most demanding conditions.

The brushless motor technology offers ultra-reliable, whisper-quiet operation with full 360° continuous rotation pan and 320° tilt control for exceptional viewing capability. Small-increment pan/tilt speeds, from just 0.2° per second to 90° per second, give the user precise control. This speed control is especially important when used with video analytic systems, particularly for tracking subjects when fully zoomed in.

A choice of true day/night camera modules offering up to 36x optical zoom (12x digital) are available, providing either 470 TVL NTSC/PAL typical (18x module) or 530 TVL NTSC/PAL typical (36x module). When coupled with upright, 45 degree canted, or inverted mounting capability, the MIC Series 400 stainless steel camera allows the perfect field of view to be achieved every time.

Functions

Grade 316L stainless steel construction

Anti-corrosion stainless steel construction ensures long-life and reliable operation in demanding conditions, such as maritime environments.

Rated to an industry leading IP68

Zero dust ingress and the ability to withstand sustained periods of immersion under water, the MIC Series 400 stainless steel camera is perfectly suited for installation in the most unforgiving environments.

Host of mounting and viewing options

Faultless operation, either upright or inverted, gives the user a host of mounting and viewing possibilities. A canted option is provided for upright pole-mounted applications, allowing the base of the pole to be viewed.

Integrated heater and wiper

Hot or cold, rain or shine – regardless of the weather, the MIC Series 400 stainless steel camera is able to capture the highest possible quality image all year around thanks to its integrated, long-life, wiper and heater.

Multi-protocol operation

Compatible with virtually any control equipment available today, the MIC Series 400 stainless steel camera is able to seamlessly integrate with the vast majority of security systems.

Certifications and Approvals

Region	Certification	
Europe	CE	AC08-10-Q012 EMC Directive, Low Voltage Directive
USA	UL	AC08-10-Q013 UL 60950-1 2nd Edition: 2007
	FCC	AC08-10-Q013 CFR 47 FCC part 15:2009, Class B
Canada	CSA	AC08-10-Q012 CAN/CSA-C22.2 No. 60950-1-07

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007
Safety	Complies with CE regulations, UL, EN, and IEC Standards 60950-1 & 22
Weatherproofing	IP68

Technical Specifications

Camera Module

Image sensor	1/4-inch EXview CCD, WDR (36x only)
Horizontal resolution	18x module, 470 TVL NTSC/PAL typical 36x module, 530 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x Optical Zoom Module

Lens	F=4.1 mm (wide) to 73.8 mm (tele), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48° (wide) to 2.8° (tele)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL) 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL) 0.01 lux (F1.4, 1/4s NTSC, 1/3s PAL ICR on)
Shutter speed	1/1 to 1/10,000 s (22 steps) NTSC, PAL

36x Optical Zoom Module

Lens	F=3.4 mm (wide) to 122.4 mm (tele), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (wide) to 1.7° (tele)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical, F1.6, 50IRE) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical, F1.6, 50IRE) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000 s (20 steps) NTSC, 1/3 to 1/10,000 s (20 steps) PAL

Operational

Auto flip	Yes
Manual flip	Yes
Dynamic privacy zones	Standard, 3D privacy masking with infinite zones
Preset	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction etc.)
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch or FV protocol cameras available; additional protocols supported are Pelco D, Kalametel, 360 Vision, American Dynamics, Panasonic, Molyneux, VCL, and Vicon. These can be loaded using the MIC-USB485CVTR signal converter and Cam-set via a PC. Biphase control requires a Biphase to RS485 converter (MIC-BP4, available separately) installed in the MIC Series PSU to connect to Biphase equipment.

Connectivity

Video	Co-axial via composite cable
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
MIC Universal Camera Setup Software Utility (Cam-set)	Supplied with each camera, Cam-set allows direct connection to a USB equipped PC via the MIC Series PSU or over a full duplex or IP network to provide access to all camera functions and useful diagnostic tools
USB to RS485 signal converter	Allows MIC Series cameras to connect to a PC (supplied free with MIC Series 400 stainless steel camera or available separately)
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Brushless integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	320°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed loop electronics
Preset accuracy	Better than 0.08°
Proportional P/T to zoom	Yes

Construction

Construction material	Grade 316L stainless steel
Viewing window	Tempered flat glass
Window wiper	Standard, long-life silicone wiper
Heater	Standard
Standard colors	Stainless Steel (no color options)
Standard finish	Stainless Steel (no finish options)
Dimensions (W x H x D)	205 x 360 x 165 mm (8.07 x 14.17 x 6.50 in.) (upright and inverted)
Weight	16.5 Kg (36.38 lb) (including 4-in. PCD base)
Configurations available	Upright mount or upright canted at 45° mount. (Inverted mount is possible using software setting and upright camera.)

Environmental

Operational temperature	-40°C to +50°C (-40 °F to +122 °F)
Weatherproofing	IP68

Electrical

Input voltage	18 VAC
Power consumption	25.2 W max. (with heater off) 37 W max. (with heater on)

Ordering Information**Accessories**

MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL
MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-USB485CVTR USB to RS485 Signal Converter USB to RS485 signal converter to allow MIC Series cameras to connect to a PC, supplied with each camera	MIC-USB485CVTR
MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM

Ordering Information

MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S
MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S
MIC-25M-S 25 m Shielded Composite Cable Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-25M-S

MIC Series 412 Thermal Camera



Features

- ▶ **Dual thermal/optical operation**
- ▶ **Brushless motor technology**
- ▶ **Robust design**
- ▶ **Integrated wiper unit**
- ▶ **Host of mounting and viewing options**
- ▶ **Easy to use**

The MIC Series 412 thermal camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for security applications that demand the very best performance. Precision engineered to exacting standards, the device offers the most ruggedized dual optical/thermal image capture solution available on the market today.

Containing both a high quality optical day/night camera module and a thermal imaging module that sit side-by-side within the housing, the compact MIC Series 412 thermal camera switches between a high resolution optical camera and a high performance thermal camera at the press of a button on the control keyboard.

A 36x day/night camera is paired with the latest 50 mm un-cooled thermal imager to provide a range of enhanced viewing options, such as spectral heat variance, and hot and cold spot highlights. The thermal imager has built-in sun protection that allows the camera to self-heal should it be pointed directly at the sun.

Brushless motor technology ensures ultra-reliable, whisper-quiet operation while groundbreaking resolver technology provides pinpoint accuracy, affording the user full 360° continuous rotation pan and 260° tilt control.

The MIC Series 412 thermal camera is compatible with all MIC Series connection cables, brackets, control equipment, and non-IR power supply units for ease of installation, integration, and operation.

System Overview

Examples of optical and thermal modes



Optical image / Thermal image in white hot spot mode



Thermal image in black hot spot mode / Thermal image in ice and fire mode



Thermal image in glow bow mode / Thermal image in iron bow mode

Functions

Separate optical and thermal cameras

Switch between optical camera and thermal imager at the press of a single button.

Brushless motor technology

Whisper-quiet operation and smooth control is provided through use of ultra-reliable brushless motors.

Robust design

Machined from solid aluminum, the MIC Series 412 thermal camera ensures corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust, powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum, used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. Sealed with

'O'-rings, the device can operate submerged up to 1 meter (3.3 feet) underwater by virtue of its design and construction.*

Note *The thermal camera will show no detail if submerged.

Integrated long-life silicone wiper and heater

Thanks to its integrated wiper and heater, the MIC Series 412 thermal camera is able to capture the highest possible quality image all year round, regardless of the weather.

Host of mounting and viewing options

Faultless operation, either upright or inverted, gives the user a host of mounting and viewing possibilities

Easy to use

Provides the same easy to use functionality of all MIC series cameras, including the same connection cables, brackets, control equipment, and non-IR power supply units.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC part 15, ICES-003, and CE regulations including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007
Safety	Complies with CE regulations, UL, EN, and IEC standards 60950-1 & 22
Weatherproofing	IP68

Technical Specifications

Camera Module (optical)

Image sensor	1/4-inch EXview CCD
Horizontal resolution	(WDR) 36x module, 530 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

36x optical zoom module

Lens	F=3.4 mm (WIDE) to 122.4 mm (TELE), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (WIDE end) to 1.7° (TELE end)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical, F1.6, 50IRE) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical, F1.6, 50IRE) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000s (20 steps) NTSC, 1/3 to 1/10,000s (20 steps) PAL

Camera Module (thermal)

Lens	50 mm
Image sensor	Focal Plane Array (FPA), un-cooled Vanadium Oxide microbolometer (standard: 7.5 Hz NTSC, 8.3 Hz PAL)
Picture elements	324(H) x 256(V)
Spatial resolution	0.760 mrad with 50 mm lens
Field of view	14°(H) x 11°(V) with 50 mm lens
Focus	Factory-set at infinity focus
Detection range	780 m (2559 ft) human detection range, 2.2 km (7218 ft) object detection
Spectral response	7.5 to 13.5 µm
Thermal sensitivity	85 mK at F1.6
Features	White hot, black hot, and false color modes

Operational

E-flip	Yes, E-flip enables the optical camera to invert the image
Manual flip	Yes
Presets	64 telemetry presets accurate to less than 0.1°utilising resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction etc.)
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch or FV protocol cameras available; additional protocols supported are Pelco D, Kallatel, Panasonic, and VCL. These can be loaded using the MIC-USB485CVTR signal converter and Cam-set via a PC. Biphase control requires a Biphase to RS485 converter (MIC-BP4, available separately) installed in the MIC Series PSU to connect to Biphase equipment.

Connectivity

Video	Single co-axial via composite cable (optical/thermal cameras, user switchable)
Telemetry	Twisted pair; Simplex, half and full duplex operation via composite cable
MIC Universal Camera Setup Software Utility (Cam-set)	Supplied with each camera, Cam-set allows direct connection to a USB-equipped PC via the MIC Series PSU over a full duplex or IP network to provide access to all camera functions and useful diagnostic tools
USB to RS485 signal converter	Allows MIC Series cameras to connect to a PC (supplied free with MIC Series 412 camera, or available separately)
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in MIC Series PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Brushless integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 72° per second (variable)
Tilt angle	260°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed loop electronics
Preset accuracy	Better than 0.08°
Proportional Pan/Tilt to Zoom	Yes

Construction

Construction material	Machined aluminum
Viewing window	Tempered flat glass (optical) and germanium covering (thermal)
Window wiper	Standard, long-life silicone wiper
Heater	Standard
Standard colors	Black(RAL9005), Grey (RAL7001) or White (RAL9003)
Standard finish	Alochrom 1200 surface treatment with powder coat paint
Dimensions (W x H x D)	267 x 445 x 200 mm (10.51 x 17.52 x 7.87 in.)
Weight	9.5 kg (20.94 lb) (including 4-in. PCD base)
Configurations available	Upright mount or inverted (inverted mount is possible using software setting and upright camera.)

Environmental

Operational temperature	-40 °C to +50 °C (-40 °F to 122 °F)
Weatherproofing	IP68

Electrical

Input voltage	18 VAC
Power consumption	50 W max

Ordering Information**Accessories**

MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL
MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM
MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-USB485CVTR USB to RS485 Signal Converter USB to RS485 signal converter to allow MIC Series cameras to connect to a PC, supplied with each camera	MIC-USB485CVTR
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S
MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S

Ordering Information

**MIC-25M-S 25 m Shielded Composite
Cable****MIC-25M-S**

Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC Series 440 Explosion-Protected Camera



Features

- ▶ **Explosion-protected unit certified to ATEX Directive 94/9/EC Exd IIC T6**
- ▶ **CSA and Inmetro certified**
- ▶ **Industry leading IP68 rating**
- ▶ **Integrated wiper**

The MIC Series 440 explosion-protected camera has been designed to offer an extremely reliable, robust, and high quality surveillance solution for potentially volatile security applications that demand the very best performance. Precision engineered to exacting standards, the range meets the requirements of ATEX Directive 94/9/EC Exd IIC T6 and CSA Class I, Division 1, Groups CD, Class II, Division 1, Groups EFG, T6 for safe use in explosive atmospheres such as those found in oil, gas, chemical processing sites, and petrochemical refineries.

Rated to an industry leading IP68, the specially designed camera housing is machined from solid aluminum. The MIC Series 440 camera ensures corrosion protection by using two different processes; first an Alocrom 1200 coating, then a robust polyester powder paint coating. Alocrom 1200 is a chromate conversion coating of aluminum, used in the aerospace and defense industries where a protective layer is required to improve corrosion resistance. Sealed with 'O'-rings, the MIC Series 440 camera can operate permanently submerged up to 1 meter (3.3 feet) underwater by virtue of its design and construction, suitable for installation in the harshest of environments. The optically-perfect flat viewing window and integrated wiper ensure razor sharp images are captured in even the most demanding conditions. This

allows the MIC Series 440 explosion-protected range to function perfectly in highly hazardous areas, such as offshore oil rigs.

The use of high-specification motors ensures reliable operation, while ground-breaking resolver technology provides pin-point accuracy and affords the user full 360° continuous rotation pan, and an unprecedented 320° tilt, control.

A choice of true day/night camera modules, offering up to 36x optical zoom (12x digital), coupled with flexible upright or inverted mounting capability, allows the perfect field of view to be achieved every time.

Functions

ATEX and CSA Certified

Meets the requirements of ATEX Directive 94/9/EC Exd IIC T6 and CSA Class I, Division 1, Groups CD, Class II, Division 1, Groups EFG, T6 for safe use in explosive atmospheres.

Rated to an industry leading IP68

Zero dust ingress and ability to withstand sustained periods of immersion under water, the MIC Series 440 explosion-protected range is perfectly suited for installation, in even the most unforgiving environments.

Integrated wiper

Regardless of the weather, the MIC Series 440 explosion-protected camera is able to capture the highest possible quality image year round, thanks to its integrated wiper.

Certifications and Approvals

Approvals

Region	Certification	
Europe	CE	Sira Examination
ATEX certified	Directive 94/9/EC Exd IIC T6	
CSA C/US	Class I, Division 1, Groups CD Class II, Division 1, Groups EFG Temperature Code T6	
Electromagnetic Compatibility (EMC)	Complies with FCC part 15, ICES-003, and CE regulations, including EN50130-4, EN61000-3-2:2006, EN61000-3-3:1995, and EN55022:2006 inc AL:2007	
Safety	Complies with CE regulations, UL, EN, and IEC standards 60950-1 & 22	

Technical Specifications**Camera Module**

Image sensor	1/4-inch EXview CCD
Picture elements	380 K NTSC / 440 K PAL (WIDE)
Horizontal resolution	18x module: 470 TVL NTSC/PAL typical 36x module: 470 TVL NTSC/PAL typical
Filter	Automatic mechanical IR cut filter
Focus system	Auto or manual
Iris	Auto or manual with slow shutter integration modes
Synchronization	Internal / External (V-Lock)
Recommended illumination	100 to 100,000 lx
Signal/Noise ratio	50 dB or more
Back Light Compensation (BLC)	On/Off
White balance	Automatic
Automatic Gain Control (AGC)	-3 to -28 dB, 2 dB steps
Aperture control	16 Steps

18x optical zoom module

Lens	F=4.1 mm (WIDE) to 73.8 mm (TELE), F1.4 to F3.0
Zoom	18x optical (12x digital)
Angle of view	48° (WIDE end) to 2.8° (TELE end)
Minimum illumination	0.7 lux (F1.4, 1/60s NTSC, 1/50s PAL), 0.11 lux (F1.4, 1/4s NTSC, 1/3s PAL), 0.01 lux or less (F1.4, 1/4s NTSC, 1/3s PAL, ICR ON)
Shutter speed	1/1 to 1/10,000s (22 steps) NTSC, PAL

36x optical zoom module

Lens	F=3.4 mm (WIDE) to 122.4 mm (TELE), F1.6 to F4.5
Zoom	36x optical (12x digital)
Angle of view	57.8° (WIDE end) to 1.7° (TELE end)
Minimum illumination	1.4 lux (1/60 s NTSC, 1/50 s PAL, typical) 0.1 lux (1/4 s NTSC, 1/3 s PAL, typical) ICR-ON mode: 0.01 lux (1/4 s NTSC, 1/3 s PAL)
Shutter speed	1/4 to 1/10,000s (20 steps) NTSC, 1/3 to 1/10,000s (20 steps) PAL

Operational

Auto flip	Yes
Manual flip	Yes
Presets	64 telemetry presets utilizing resolver technology (using FV protocol, 10 camera set-up presets to allow ANPR, color correction, etc.)*
Preset tours	6 tours each with up to 32 presets
Sector titles	Yes (64 sectors) 20 characters per title
Preset titles	20 character caption for each of the 64 presets
Home position	Yes (preset 1 or tour)

*Functions available when used with the Forward Vision Protocol, other protocols may vary.

Communication and Protocols

Communication	RS485 / RS422
Control protocol	Bosch, Forward Vision, Pelco, American Dynamics, and VCL protocol variants available. Bi-phase control requires Biphasic to RS485 converter (MIC-BP4) to be installed in the power supply (available separately).

Connectivity

Video	Co-axial via composite cable
Telemetry	Twisted pair. Simplex, half and full duplex operation via composite cable
Power	Via composite cable

Alarms

Alarm inputs	1 tamper input (additional inputs possible with optional alarm card in PSU)
Alarm communication	Tamper switch (ground connection)

Mechanical

Drive unit	Integral pan/tilt motor drive
Pan angle	360° continuous rotation
Pan speed	Up to 90° per second (variable)
Tilt angle	320°
Tilt speed	0.2° to 90° per second (variable)
Speed control	Closed-loop electronics
Preset accuracy	Better than 0.08°
Proportional P/T to zoom	Yes

Physical

Construction material	Machined aluminum
Viewing window	Tempered flat glass
Standard colors	Black (RAL9005), White (RAL9003)
Standard finish	Alochrom 1200 surface treatment with powder coat paint.
Dimensions (W x H x D)	286 x 523.6 x 189 mm (11.26 x 20.61 x 7.44 in.) (including deep conduit adapter)
Weight	15.5 Kg (34.17 lb) (including 4-in. PCD base and supplied deep conduit adapter)

Environmental

Operational temperature	-20 °C to +60 °C (-4 °F to 160 °F)
Weatherproofing	IP68

Electrical

Input voltage	18VAC
Power consumption	25.2 W max

Note: MIC Series power supplies and accessories are not ATEX compliant. These should be located outside the hazardous area or provided with ATEX-compliant enclosures and cable conduit or cable glands.

Ordering Information

MIC440AXBUA14618N MIC 18x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, NTSC	MIC440AXBUA14618N
MIC440AXBUA14618P MIC 18x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, PAL	MIC440AXBUA14618P
MIC440AXBUA14636N MIC 36x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, NTSC	MIC440AXBUA14636N
MIC440AXBUA14636P MIC 36x Optical zoom, Explosion-Protected, black, upright, AD Protocol, wiper fitted, PAL	MIC440AXBUA14636P
MIC440AXBUD14618P MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXBUD14618P
MIC440AXBUD14636P MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXBUD14636P
MIC440AXBUL14618N MIC 18x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXBUL14618N
MIC440AXBUL14618P MIC 18x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, PAL	MIC440AXBUL14618P
MIC440AXBUL14636N MIC 36x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXBUL14636N
MIC440AXBUL14636P MIC 36x Optical zoom, Explosion-Protected, black, upright, VCL Protocol, wiper fitted, PAL	MIC440AXBUL14636P
MIC440AXBUP14618P MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXBUP14618P
MIC440AXBUP14636P MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXBUP14636P
MIC440AXBWU14618N MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, NTSC	MIC440AXBWU14618N
MIC440AXBWU14618P MIC440 ATEX MIC 18x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, PAL	MIC440AXBWU14618P
MIC440AXBWU14636N MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, NTSC	MIC440AXBWU14636N
MIC440AXBWU14636P MIC440 ATEX MIC 36x Optical zoom, Explosion-Protected, black, upright, FV Protocol, wiper fitted, PAL	MIC440AXBWU14636P

Ordering Information

MIC440AXWUA14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, NTSC	MIC440AXWUA14618N
MIC440AXWUA14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, PAL	MIC440AXWUA14618P
MIC440AXWUA14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, NTSC	MIC440AXWUA14636N
MIC440AXWUA14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, AD Protocol, wiper fitted, PAL	MIC440AXWUA14636P
MIC440AXWUD14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, NTSC	MIC440AXWUD14618N
MIC440AXWUD14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXWUD14618P
MIC440AXWUD14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, NTSC	MIC440AXWUD14636N
MIC440AXWUD14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, Pelco Protocol, wiper fitted, PAL	MIC440AXWUD14636P
MIC440AXWUL14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXWUL14618N
MIC440AXWUL14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, PAL	MIC440AXWUL14618P
MIC440AXWUL14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, NTSC	MIC440AXWUL14636N
MIC440AXWUL14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, VCL Protocol, wiper fitted, PAL	MIC440AXWUL14636P
MIC440AXWUP14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, NTSC	MIC440AXWUP14618N
MIC440AXWUP14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXWUP14618P
MIC440AXWUP14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, NTSC	MIC440AXWUP14636N

Ordering Information	
MIC440AXWUP14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, Bosch Protocol, wiper fitted, PAL	MIC440AXWUP14636P
MIC440AXWUW14618N MIC 18x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, NTSC	MIC440AXWUW14618N
MIC440AXWUW14618P MIC 18x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, PAL	MIC440AXWUW14618P
MIC440AXWUW14636N MIC 36x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, NTSC	MIC440AXWUW14636N
MIC440AXWUW14636P MIC 36x Optical zoom, Explosion-Protected, white, upright, FV Protocol, wiper fitted, PAL	MIC440AXWUW14636P
Accessories	
MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL
MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4
MIC-PMB Pole Mount Bracket Pole mount bracket (includes 2 x 455 mm banding ties for pole diameters 75 to 145 mm)	MIC-PMB
MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S

Ordering Information	
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S
MIC-20M-S 20 m Shielded Composite Cable Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-20M-S
MIC-25M-S 25 m Shielded Composite Cable Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-25M-S

MIC Series Power Supplies



Features

- Provide all connections for power, telemetry and video for the MIC series range of PTZ cameras
- Weather-resistant, cast-aluminum IP65 enclosure
- Ground isolation and termination to control video grounding and to prevent ground loops

The MIC Series power supplies from Bosch Security Systems provide all connections for power, telemetry and video for the MIC series range of PTZ cameras.

Each power supply has UL, CE and FCC approval, is rated to IP65 and comes in a selection of input voltages with variants for MIC Series cameras with and without integrated Infrared illuminators.

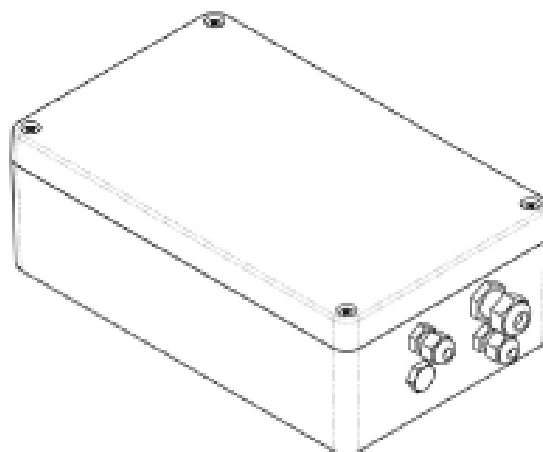
System Overview

- Weather-resistant, cast-aluminum IP65 enclosure
- Weather-proof 1/2-in. NPT, M16 and M12 cable glands for connection of power, video, telemetry and ancillary equipment
- Ground isolation and termination to control video grounding and to prevent ground loops
- Integrated header for addition of ancillary cards such as the MIC alarm card, washer pump drive card or bi-phase converter card (non IR power supplies only)
- Integrated washer pump drive with test function (IR power supplies only)
- Integrated four-input alarm terminal (IR power supplies only)

Certifications and Approvals

Region	Certification	
Europe	CE	EC Declaration of Conformity
USA	UL	60950-1, 2nd Edition:2007
	FCC	CFR 47 FCC Part 15:2009 Class B
Canada	CSA	CAN/CSA-22.2-No. 60950-1-07
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15 and ICES-003 regulations	
Product Safety	Complies with UL (UL 2044), CSA Standards (CSA Standard C22.2 No. 1-98), and CE	
Environmental Protection	IP65	

Installation/Configuration Notes



Power Supply Box – full view



Power Supply Box – side view



Power Supply Box – bottom view

Technical Specifications

Electrical

Model

MIC-24PSU-UL	Input: 24 VAC, 50/60 Hz, 1.4 A Output 1 (Camera): 18 VAC, 950 mA Output 2 (Heaters): 18V AC, 600 mA
MIC-IR-24PSU-UL	Input: 24 VAC, 50/60 Hz, 2.6 A Output 1 (Camera): 18 VAC, 950 mA Output 2 (IR Lamps): 0–26 VDC, 1 A
MIC-115PSU-UL	Input: 115 VAC, 50/60 Hz, 300 mA Output 1 (Camera): 18 VAC, 950 mA Output 2 (Heaters): 18 VAC, 600 mA
MIC-IR-115PSU-UL	Input: 115 VAC, 50/60 Hz, 600 mA Output 1 (Camera): 18 VAC, 950 mA Output 2 (IR Lamps): 0–26 VDC, 1 A
MIC-240PSU-UL	Input: 230 VAC, 50/60 Hz, 150 mA Output 1 (Camera): 18 VAC, 950 mA Output 2 (Heaters): 18 VAC, 600 mA
MIC-IR-240PSU-UL	Input: 230 VAC, 50/60 Hz, 280 mA Output 1 (Camera): 18 VAC, 950 mA Output 2 (IR Lamps): 0–26 VDC, 1 A

Mechanical

Dimensions (H x W D)

• Enclosure	90.5 x 160 x 260 mm (3.6 x 6.3 x 10.2 in.)
• With glands	90.5 x 160 x 288 mm (3.6 x 6.3 x 11.3 in.)
Form Factor (four screw holes)	110 x 240 mm (4.3 x 9.4 in.)

Weight

• Standard	3.24 kg (7.14 lbs)
• Infrared Models	3.75 kg (8.27 lbs) approx.
Material	Powder-coated cast-aluminum, IP65
Color	RAL 9010 (Pure White)
Options	MIC-ALM 8-input alarm card MIC-WKT washer pump kit MIC-BP4 Bi-phase card

Environmental

Operating Temperature

- Non-IR power Supplies –40° to +60°C (–40° to +140°F)
- IR Power Supplies –40° to +50°C (–40° to +122°F)

Storage Temperature –40° to +65°C (–40° to +149°F)

Ordering Information

MIC-24PSU-UL 24 VAC Camera Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras	MIC-24PSU-UL
MIC-IR-24PSU-UL 24 VAC Camera/IR Power Supply 24 VAC, 50/60 Hz power supply for MIC Series cameras with Infrared Illuminators	MIC-IR-24PSU-UL
MIC-115PSU-UL 115 VAC Camera Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras	MIC-115PSU-UL
MIC-IR-115PSU-UL 115 VAC Camera/IR Power Supply 115 VAC, 60 Hz power supply for MIC Series cameras with Infrared Illuminators	MIC-IR-115PSU-UL
MIC-240PSU-UL 240 VAC Camera Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras	MIC-240PSU-UL
MIC-IR-240PSU-UL 240 VAC Camera/IR Power Supply 240 VAC, 50 Hz power supply for MIC Series cameras Infrared Illuminators	MIC-IR-240PSU-UL

Accessories

MIC-ALM Alarm and Washer Pump Drive Card 8 Input alarm and washer pump drive card for PSU (Not for IR PSU)	MIC-ALM
MIC-BP4 Bi-phase Converter Bi-Phase converter for non-IR versions of MIC series power supply units	MIC-BP4
MIC-WKT Washer Kit Washer kit for non infrared MIC models (includes washer pump drive card, washer nozzle and mounting brackets for wall and 4 in. PCD base)	MIC-WKT
MIC-2M-S 2 m Shielded Composite Cable Shielded Composite 2 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-2M-S
MIC-10M-S 10 m Shielded Composite Cable Shielded Composite 10 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply	MIC-10M-S

Ordering Information

MIC-20M-S 20 m Shielded Composite Cable **MIC-20M-S**

Shielded Composite 20 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

MIC-25M-S 25 m Shielded Composite Cable **MIC-25M-S**

Shielded Composite 25 m cable that provides power, telemetry and video connection from a MIC Series camera to a MIC Series power supply

GVS1000 Long Range Imaging system



Features

- ▶ **Integrated solution for long range day/night PTZ night vision**
- ▶ **60x IR-corrected motor zoom lens with focal length of 12.5-750 mm extending to 25-1500 mm with doubler function**
- ▶ **High performance Dinion XF CCD imaging core**
- ▶ **Dual ZX700 IR illuminators provide night vision performance to 1200 m (3900 ft) for Classification-level performance**
- ▶ **BDS208DS IR Illuminators for medium range night vision**

The GVS1000 is a system designed for long range, day/night, pan-tilt-zoom surveillance. The system delivers 1 km of recognition-level performance and 1200 m (3900 ft) of classification-level performance in total darkness. The GVS1000 provides long range 24/7 imaging for critical applications such as port and maritime monitoring, transportation and airport surveillance, and border and extended perimeter security.

To effectively perform to such capabilities, the GVS1000 is equipped with an IR-corrected, long range lens capable of 60x optical zoom. With a focal length of 12.5-750 mm or 25-1500 mm (with doubler function engaged), the lens works together with the high performance Dinion XF sensor to produce ultra-high quality images at far distances in day and night conditions.

System capability is greatly enhanced using active IR illumination. Two sets of illuminators are provided; one for long range and one for medium-to-short range night imaging. There are no safety concerns, as is the case with laser-based units. IR illumination can be controlled manually or put into automatic mode for auto on/off function via a photocell.

For control, the GVS1000 is compatible with Pelco P/D protocols via RS422/RS485 and Bosch Biphase.

Functions

Optics and IR

- IR-corrected 60x optical zoom for night vision beyond 1.2 km
- Best-in-class Dinion XF imaging performance
- Long range ZX700 IR illumination
- Medium/short range IR provided by dual BDS208DS with Black Diamond technology

PT Motor

- Variable speed and highly precise motor drive in pan and tilt
- Preset and tour functionality with hard and soft limits

System / Installation and Maintenance

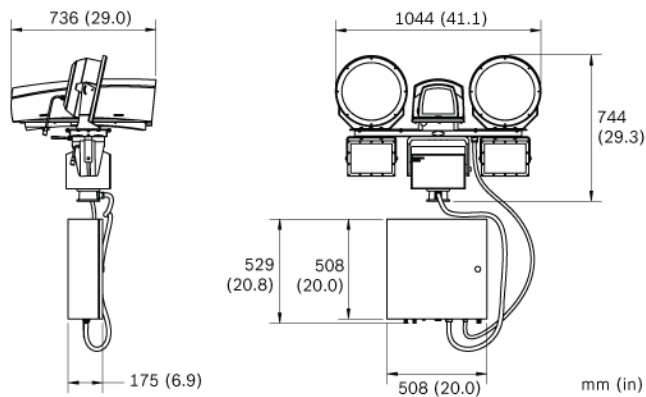
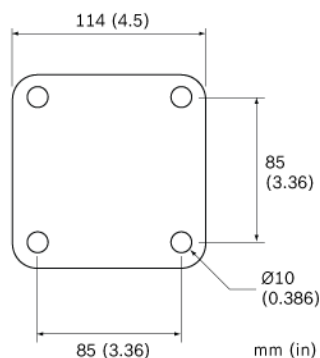
- Self-testing diagnostics function
- Indicator LEDs and voltage touch points for all maintenance requirements
- Hardened connectors and cables for long life
- External power indicator LED

Night-time performance range (under optimal conditions)

Level	Distance	Description
Classification	1,200 m (3,900 ft)	Performance level at which an object is determined to be human as opposed to an animal or other object.
Recognition	1000 m (3,300 ft)	Performance level at which a human-sized object is determined to be a threat or non-threat based on the type of clothing worn, equipment carried, etc. (friend or foe).
Identification	500 m (1,650 ft)	Performance level at which a human target can be identified as a specific individual.

Certifications and Approvals

Region	Certification
Europe	CE
USA	FCC
Canada	CSA

Installation/Configuration Notes**Dimensions****Motor base mounting template****Technical Specifications****Long-Range Illumination**

IR Illuminator	ZX700 IR
Wavelength	730 nm
Beam Pattern	2.5° spot beam with circular pattern
Bulb Life	Average 2,000 hours

Medium-Range Illumination

IR Illuminator	BDS208DS
Wavelength	850 nm
Beam Pattern	20° horizontal coverage, Black Diamond technology
LED Array	560 LED Array each (2x units used)
LED Life	> 5 years

Optics

Camera Type	Dinion XF Day/Night Camera
TV System	NTSC or PAL
Resolution	540 TVL
Effective Pixels	NTSC: 768 (H) x 492 (V) PAL: 752 (H) x 582 (V)
S/N Ratio	Greater than 50dB
Gain Control	AGC
Lens Type	IR-Corrected 60x Motor Zoom Lens
Focal Length	12.5 mm to 750 mm 25 mm to 1500 mm with doubler

Magnification	60x optical
Zoom Operation	Motor drive (remote manual control)
Focus Operation	Motor drive (remote manual control)
Iris Operation	Automatic (remote manual control option)
Angle of View - Wide	28.4° horizontal x 21.4° vertical
Angle of View - Telephoto	0.29° horizontal x 0.22° vertical at 750 mm 0.15° horizontal x 0.11° vertical at 1500 mm
Focusing Range	5 m in front of lens to infinity
Wiper	Manual on/off control

Pan/Tilt Motor

Pan Range	± 215°
Tilt Range	± 90°
Pan Speed	0.3° to 8° per second
Tilt Speed	0.1° to 4.5° per second
Repeatability	0.25°
Motor Type	Permanent magnet
Drive Train	Steel gear and worm, ball and tapered roller bearing
Limit Switches	Adjustable hard limits, electronically adjustable soft limits
Backlash	Adjustable

Mechanical

Construction	All-weather aluminum construction with stainless steel fastenings
Finish	Baked enamel finish, black standard
Bracket	Cable management included
Dimensions (motor assembly)	1044 x 736 x 744 mm (L x W x H) 41.1 x 29 x 29.3 in (L x W x H)
Dimensions (PSU)	508 x 175 x 529 mm (L x W x H) 20 x 6.9 x 20.8 in (L x W x H)
Weight (excluding PSU)	50 kg (110 lb)
IR Power Cable	7.5 m (25 ft)
PSU Weight	20 kg (45 lb)
PSU Composite Cable	6 m (20 ft)
System Mount	4-inch PCD

Environmental

Operation Temperature Range	-20 °C to +50 °C (-4 °F to 122 °F)
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System Control

Protocol	Pelco P / D (RS422 / RS485), Bosch Biphas
Presets	32 pan / tilt / zoom presets
Tours	3 pan / tilt / zoom tours with 63 presets per tour

Electrical

Input Voltage	120 VAC or 230 VAC, 50/60 Hz
Power Requirements	800 W with full IR

Ordering Information**GVS1000-11-P Long Range Imaging System GVS1000-11-P**

Long range PTZ imaging platform, day/night,
60x optical zoom, 12.5 to 750 mm /
25 to 1500 mm with doubler, 730 nm long
range IR, PAL, Pelco P/D supported,
120 to 230 VAC PSU included.

GVS1000-11-N Long Range Imaging System GVS1000-11-N

Long range PTZ imaging platform, day/night,
60x optical zoom, 12.5 to 750 mm /
25 to 1500 mm with doubler, 730 nm long
range IR, NTSC, Pelco P/D supported,
120 to 230 VAC PSU included.

GVS1000-12-P Long Range Imaging System GVS1000-12-P

Long range PTZ imaging platform, day/night,
60x optical zoom, 12.5 to 750 mm /
25 to 1500 mm with doubler, 730 nm long
range IR, PAL, Biphase supported,
120 to 230 VAC PSU included.

GVS1000-12-N Long Range Imaging System GVS1000-12-N

Long range PTZ imaging platform, day/night,
60x optical zoom, 12.5 to 750 mm /
25 to 1500 mm with doubler, 730 nm long
range IR, NTSC, Biphase supported,
120 to 230 VAC PSU included.

High-Speed Positioning System



Features

- ▶ **Pans up to 100° per second, 360° continuous rotation**
- ▶ **Tilts up to 40° per second, -90° to +40° range**
- ▶ **Wide range of camera-zoom combinations**
- ▶ **Multi-protocol including Biphase and Bilinx**
- ▶ **IP 66 rated, tough, attractive casing with up to 20 kg balanced load**

The Bosch High-Speed Positioning System is a complete solution that is high on quality and performance. It can pan 360° continuously at speeds of up to 100° per second. An extensive range of options lets you tailor the system to your specific requirements.

Autopan and patrol functions are accurate to within 0.02°, with text labels assigned to presets for added convenience. Insert privacy zones or sector blanking to block private areas from being viewed. Automatic lens scaling, which keeps zoom and speed synchronized, ensures smooth video pictures throughout pan and tilt movement.

A completely self-contained unit, the high-speed positioning system is easy to install and maintain. Multi-protocol capabilities, including Bilinx and Biphase, also simplify connections. The tough, protective casing can support 20 kg balanced load and is IP66-rated – ideal for weathering the outdoor conditions common in traffic and industrial applications. All units have a sunshield. Versions with integrated wiper are also available, including an optional washer.

Functions

Autopan and patrol

With 0.02° tracking accuracy for preset positioning, autopan and patrol functions are very precise. Assign convenient text labels using up to 20 characters to presets and different areas. Define highly flexible tracking sequences by combining patrol positions with different speed settings, up to a maximum 100° per second pan and 30° per second tilt.

There are four local alarm inputs and two relay outputs.

Multi-protocol

The high-speed positioning system operates with Bosch hardware platforms – Divar, DiBos, Allegiant – and is fully compatible with control protocols such as Biphase and Bilinx. Biphase allows control of pan, tilt, zoom, focus, and the wiper / washer. Bilinx offers the same functionality as Biphase, with additional communication capability.

High-speed pan and tilt with automatic scaling

The unit can reach a very fast panning speed of 100° per second with 360° continuous panning in manual mode. Tilt speeds achieve 40° per second in manual mode. It also offers ample scope for changing the horizontal view, with movement ranging between -90° below and +40° above the horizon. To ensure smooth, clear pictures during rapid movement, automatic scaling synchronizes the P&T speed to the amount of zoom.

Interconnections

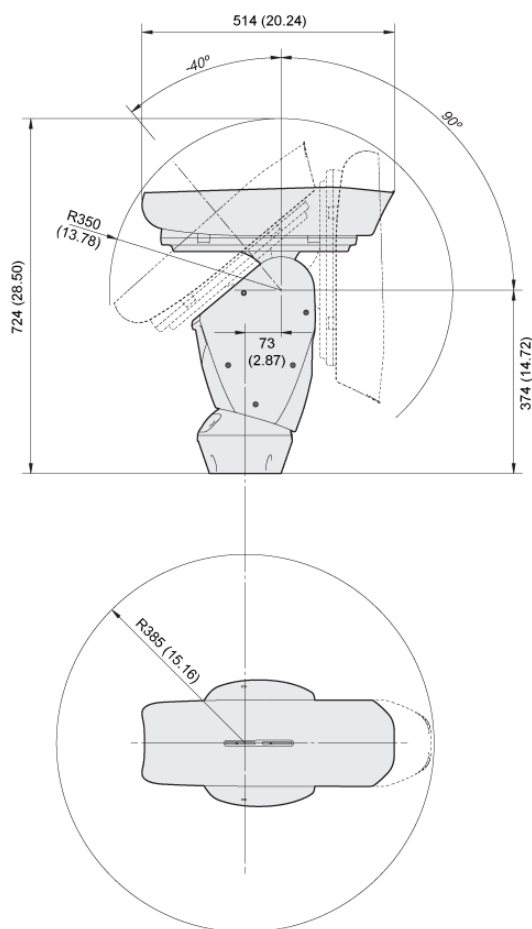
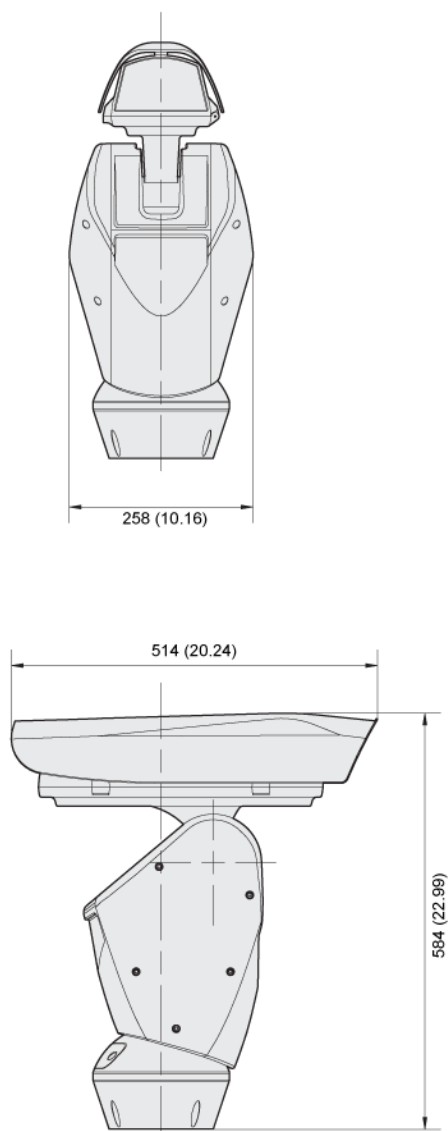
- RS-232C connector for firmware upgrades / IP control
- RS-485 connector for control interfaces
- Biphase
- Bilinx

Certifications and Approvals

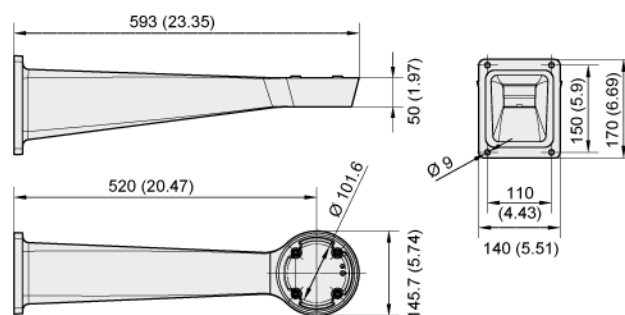
Region	Certification	
Europe	CE	UPH-Z26H
Safety		acc. to EN 60950 (CE)
Immunity		acc. to EN 50130-4 (CE)
		acc. to EN 55022 Class B (CE)
Emission		acc. to EN 61000-3-2 (CE)
		acc. to EN 61000-3-3 (CE)
Water/dust protection		IP 66 acc. to EN 60529

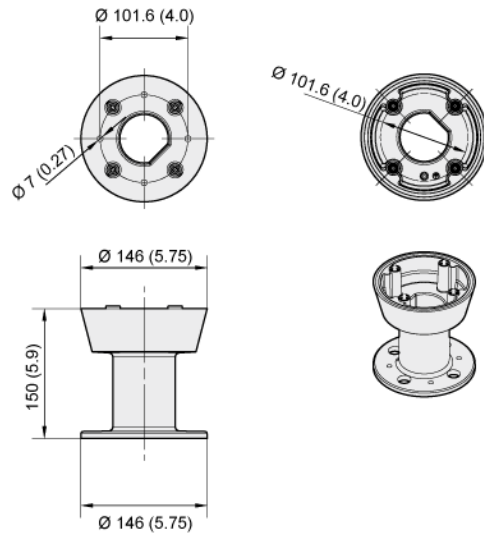
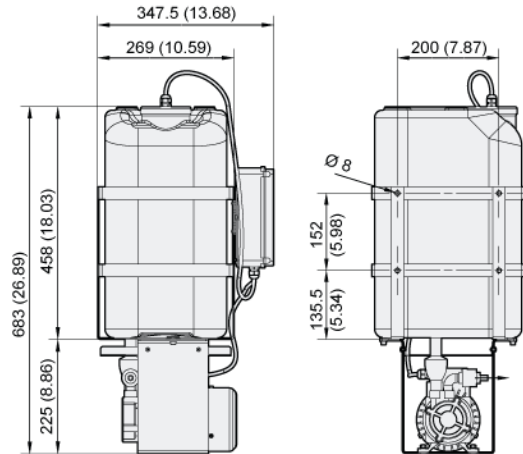
Installation/Configuration Notes

UPH dimensions

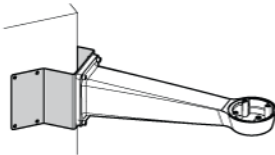
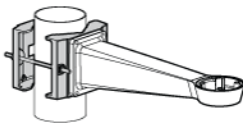
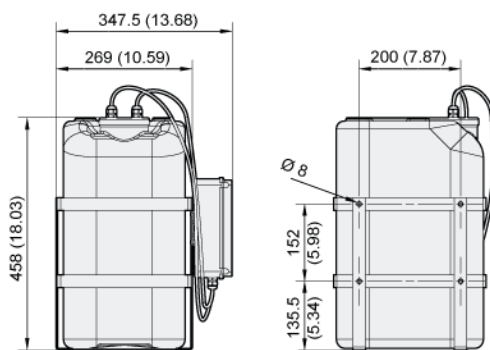


MTC-WUPH



MTC-PUPH**HAC-WAS30**

Dimensions in mm (in.)

MTC-CORN-W**MTC-POLE-W****HAC-WAS05****Parts Included**

Quantity	Component
1	Head unit with pre-installed camera and lens
1	Base unit with power supply
1	Serial cable
1	Serial adapter
1	Installation manual
1	Power supply unit
1	Set of mounting accessories <ul style="list-style-type: none"> • 4 mm Allen wrench • Bracket with fixing screws • Cable ties • Tube • Label

Technical Specifications**Electrical**

Input voltage	24 VAC - 5 A / 230 VAC - 0.5 A
Input frequency	50 Hz
Integrated housing	Thermostat heater, 20 W
Camera input	12 VDC - 800 mA
Lens input	+6 to +15 VDC - 200 mA
Wiper (optional) input	24 VAC - 400 mA
Tour control	Autopan; Preset; Patrol
Presets	250 selectable (max. 99 via keyboard)
Preset / area names	20 character string
Preset accuracy	0.02 °
Data set-up	Flash memory
Serial	RS-232, Sub-D for firmware upgrade
Protocols	Bilinx, Biphase and third party protocols on RS485
Supported platforms	DiBos, Divar, Allegiant

Max addressable units	255 (dipswitch setting)
Firmware upgrades	RS-232 interface
Configuration modes	Via PC or OSD
Configuration interface	RS-485

UPH-Z Series – 36x camera module

Number of effective pixels	Approx. 440,000
Imager	1/4 in. Exview HAD CCD
Resolution	540 TVL (NTSC, PAL) typical
Minimum illumination	1.4 Lux (typical) at F1.6, 50 IRE
S/N Ratio	More than 50 dB
Electronic shutter	1/1 to 1/10,000 s, 22 steps
White balance	2000 K to 10,000 K
Gain	Off/Auto (with adjustable limit)
AE Control	Auto, manual, priority mode, bright, EV compensation, backlight compensation
Focusing system	Auto (sensitivity: normal, low), One-Push AF, manual, infinity interval AF, zoom trigger AF
Video output	1.0 Vp-p, 75 Ohm

Masking

Privacy zone	On/off (24 positions)
Max blocks display	8
Blocks resolution	160 H x 120 V

Lens

36 x optical zoom	F=3.4 (wide) to 122.4 (tele), F1.6 to F4.5
Digital zoom	12 x (312 x with optical zoom)
Angle of view (H)	57.8° (wide) to 1.7° (tele)

UPH-Z series – 26x camera module

Number of effective pixels	Approx. 440,000
Imager	Interline CCD 1/4 – inch format
Resolution	≥ 460 TVL
Minimum illumination	1.0 Lux (typical) at F1.6, 50 IRE
S/N Ratio	More than 50 dB
Electronic shutter	1/1 to 1/10,000 s, 22 steps
White balance	Auto, ATW, indoor, outdoor, One-Push, manual
Gain	Auto/manual (-3 to +28 dB, 2 dB steps)
AE Control	Auto, manual, priority mode, bright, EV compensation, backlight compensation
Focusing system	Auto (sensitivity: normal, low), One-Push AF, manual, infinity interval AF, zoom trigger AF
Video output	CVBS: 1.0 Vpp

Masking

Privacy zone	On/off (24 positions)
Max blocks display	8
Blocks resolution	160 H x 120 V

Lens

26 x optical zoom	F=3.5 (wide) to 91.0 mm (tele), F1.6 to F3.8
Digital zoom	12 x (312 x with optical zoom)
Angle of view (H)	55° (wide) to 2.3° (tele)

Mechanical

Dimensions (H x W x D)	584 x 258 x 514 mm (23 x 10.2 x 20.2 in)
Weight	Approx. 14 kg (31 lb)
Mounting	Top mount (OTT)
Color	Light grey (RAL 7035)
Material	Die cast and extruded aluminum, ABS
Rotation	
horizontal	360° continuous
vertical	-90° to +40°
Speed	Manual Patrol / Autopan
horizontal (pan)	0.1° to 100°/s 0.1° - 100°/s
vertical (tilt)	0.1° to 40°/s 0.1° - 30°/s
Static / dynamic torque	
horizontal	20 Nm
vertical	20 Nm
Transmission	Toothed belt

Environmental

Operating temperature	-20 °C to +40 °C (-4 °F to +104 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Humidity	<90% relative humidity (noncondensing)
Enclosure protection	IP 66

Ordering Information

UPH-Z26H-10 HS P&T with 26x D/N Camera Module 24 VAC 50/60 Hz, Biphase and Bilinx, 26x zoom AF, PAL	UPH-Z26H-10
UPH-Z26HW-10 HS P&T + wiper with 26x D/N Camera Module 24 VAC 50/60 Hz, Biphase and Bilinx, 26x zoom AF, PAL	UPH-Z26HW-10
UPH-Z26H-50 HS P&T with 26x D/N Camera Module 230 VAC 50 Hz, Biphase and Bilinx, 26x zoom AF, PAL	UPH-Z26H-50
UPH-Z26HW-50 HS P&T + wiper with 26x D/N Camera Module 230 VAC 50 Hz, Biphase and Bilinx, 26x zoom AF, PAL	UPH-Z26HW-50
UPH-2D10-10 HS P&T with 1/2" DinionXF D/N Camera 24 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-2D10-10
UPH-2D10W-10 HS P&T + wiper with 1/2" DinionXF D/N Camera 24 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-2D10W-10

Ordering Information	
UPH-2D10-50 HS P&T with 1/2" DinionXF D/N Camera 230 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-2D10-50
UPH-2D10W-50 HS P&T + wiper with 1/2" DinionXF D/N Camera 230 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-2D10W-50
UPH-2D15-10 HS P&T with 1/2" DinionXF Camera 24 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-2D15-10
UPH-2D15W-10 HS P&T + wiper with 1/2" DinionXF Camera 24 AC, 15x zoom, 8 – 120 mm, PAL	UPH-2D15W-10
UPH-2D15-50 HS P&T with 1/2" DinionXF Camera 230 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-2D15-50
UPH-2D15W-50 HS P&T + wiper with 1/2" DinionXF Camera 230 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-2D15W-50
UPH-3D10-10 HS P&T with 1/3" DinionXF D/N Camera 24 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-3D10-10
UPH-3D10W-10 HS P&T + wiper with 1/3" DinionXF D/N Camera 24 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-3D10W-10
UPH-3D10-50 HS P&T with 1/3" DinionXF D/N Camera 230 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-3D10-50
UPH-3D10W-50 HS P&T + wiper with 1/3" DinionXF D/N Camera 230 VAC, 10x zoom, IR, 8.5 – 85 mm, PAL	UPH-3D10W-50
UPH-3D15-10 HS P&T with 1/3" DinionXF Camera 24 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-3D15-10
UPH-3D15W-10 HS P&T + wiper with 1/3" DinionXF Camera 24 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-3D15W-10
UPH-3D15-50 HS P&T with 1/3" DinionXF Camera 230 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-3D15-50
UPH-3D15W-50 HS P&T + wiper with 1/3" DinionXF Camera 230 VAC, 15x zoom, 8 – 120 mm, PAL	UPH-3D15W-50
Accessories	
MTC-WUPH Outdoor Wall Mount for UPH series	MTC-WUPH
MTC-PUPH Outdoor Pole Mount for mounting a UPH series unit to the top of a pole	MTC-PUPH
MTC-CORN-W Corner Adapter for MTC-WUPH	MTC-CORN-W
MTC-POLE-W Pole Adapter for MTC-WUPH for mounting a UPH series unit to the side of a pole	MTC-POLE-W

High-Speed Positioning System



Features

- ▶ **Pans up to 100° per second, 360° continuous rotation**
- ▶ **Tilts up to 40° per second, -90° to +40° range**
- ▶ **Choice of Dinion^{XF} Color or Dinion 2X Day/Night cameras and motorized zoom lens combinations**
- ▶ **IP 66 rated, tough, attractive casing with up to 20 kg balanced load**
- ▶ **Optional Bosch AEGIS UFLED Infrared Illuminator assembly attaches directly to the High-Speed Positioning System for operation in dark environments**
- ▶ **Multi-protocol including Biphase, Bilinx, Pelco-D, and third party protocols on RS-485**

The Bosch High-Speed Positioning System (HSPS) is a complete solution that is high on quality and performance. It can pan 360° continuously at speeds of up to 100° per second. An extensive range of options lets you tailor the system to your specific requirements. For example, the HSPS offers a variety of Dinion^{XF} and Dinion 2X cameras and lens combinations, and the system can be ordered with two Bosch AEGIS UFLED Infrared Illuminators for operation in dark environments.

Autopan and patrol functions are accurate to within 0.02°, with text labels assigned to presets for added convenience. Automatic lens scaling, which keeps zoom and speed synchronized, ensures smooth video pictures throughout pan and tilt movement.

A completely self-contained unit, the High-Speed Positioning System is easy to install and maintain. Multi-protocol capabilities, including Bilinx and Biphase, also simplify connections. The tough, protective casing can support a 20 kg balanced load and is IP66-rated – ideal for weathering the outdoor conditions common in traffic and industrial applications. All units have a sunshield and an integrated wiper. The wiper is available with an optional washer.

High-Speed Pan/Tilt with Infrared Illumination

The IR 360 version of the High-Speed Positioning System comes with a bracket and two Bosch AEGIS UFLED Infrared Illuminators, without the need for rotating cables. The IR 360 system features two local alarm inputs, one input for synchronizing the infrared lighting and one relay output for an intelligent local alarm.

System Overview

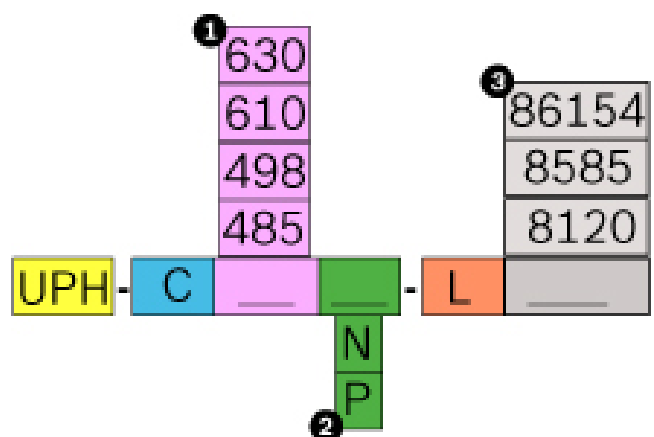
Modular Design

The High-Speed Positioning System is based on four modules: the camera and lens sled assembly, the Main Pan/Tilt unit including the base power supply, the optional mounting hardware and the optional illuminators.

The modular design allows you to customize an HSPS to fit your specific application. To build an HSPS, select one option from **Modules A** and **B**. In addition, you may further customize your HSPS by selecting an optional mounting solution from **Module C** and two optional illuminators from **Module D**.

Module A: Camera and Lens Combination

Choose from a selection of Bosch Dinion cameras and lenses. This module comes pre-assembled and attached to a sled that is installed inside the HSPS housing. Use this ordering chart to construct the Camera/Lens combination:



1 Camera

- 485 LTC 0485 Dinion^{XF} Color Camera, 1/3 in.
- 498 LTC 0498 Dinion 2X Day/Night Camera, 1/3 in.
- 610 LTC 0610 Dinion^{XF} Color Camera, 1/2 in.
- 630 LTC 0630 Dinion 2X Day/Night Camera, 1/2 in.

1 Camera**2 Video Format**

N	NTSC
P	PAL

3 Lens

8120	8-120 mm motorized zoom lens
8585	8.5-85 mm IR-corrected motorized zoom lens
86154	8.6-154 mm IR-corrected motorized zoom lens

Module B: Pan/Tilt System with Power Supply

Choose a main pan/tilt system and power supply combination. The **Standard System** contains a high-performance pan/tilt head, camera housing with an optional integrated wiper, and a telemetry receiver. The **IR 360 System** contains all the Standard System features plus a bracket assembly for two (2) illuminators.

Option	Description
UPH-HD-230	<ul style="list-style-type: none"> Standard System 230 VAC, 50 HZ Power Supply
UPH-HWD-230	<ul style="list-style-type: none"> Standard System Wiper 230 VAC, 50 HZ Power Supply
UPH-HWD-120	<ul style="list-style-type: none"> Standard System Wiper 120 VAC, 60 HZ Power Supply
UPH-HD-24	<ul style="list-style-type: none"> Standard System 24 VAC, 50/60 HZ Power Supply
UPH-HWD-24	<ul style="list-style-type: none"> Standard System Wiper 24 VAC, 50/60 HZ Power Supply
UPH-HWDIR-24	<ul style="list-style-type: none"> IR 360 System Wiper 24 VAC, 50/60 Hz Power Supply

Module C: Mounts

Choose an optional mounting solution for the Standard or for the IR 360 System.

Option	Description
MTC-PUPH	Top of pole mount
MTC-WUPH	Wall mount
MTC-CORN-W	Corner adapter for wall mount
MTC-POLE-W	Side of pole adapter for wall mount

Module D: Illuminators

Choose two (2) optional Bosch AEGIS UFLED Intelligent Infrared Illuminators.^{1, 2, 3}

Suggested Models	Description
UFLED10-8BD	10°, 850 nm
UFLED20-8BD	20°, 850 nm
UFLED30-8BD	30°, 850 nm

1. The IR Illuminator option is available only with the UPH-HWDIR-24 (IR 360 Main Pan/Tilt System).

2. You may select two of the same or two different illuminators.

3. 940 nm (covert) and White Light (visible) wavelength options also compatible. Performance characteristics will vary. See the UFLED datasheet for illumination distances.

Functions**Multi-protocol**

The High-Speed Positioning System operates with Bosch hardware platforms – Divar, DiBos, Allegiant – and is fully compatible with control protocols such as Biphas, Bilinx, Pelco-D, and third party protocols on RS-485. Biphas allows control of pan, tilt, zoom, focus, and the wiper / washer. Bilinx offers the same functionality as Biphas, with additional communication capability for configuring Dinion camera settings.

High-Speed Pan/Tilt with Automatic Scaling

The unit can reach a very fast panning speed of 100° per second with 360° continuous panning in manual mode. The HSPS can achieve tilt speeds of 40° per second in manual mode. It also offers ample scope for changing the horizontal view, with movement ranging between -90° below and +40° above the horizon. To ensure smooth, clear pictures during rapid movement, automatic scaling synchronizes the pan/tilt speed to the amount of zoom.

Dinion^{XF}- and Dinion 2X-Dynamic Cameras

The Bosch-High Speed Positioning System comes with a choice of 1/3-inch or 1/2-inch Dinion^{XF} Color or Dinion 2X Day/Night CCDs with 540 TVL resolution, and outstanding sensitivity. The Dinion cameras deliver the highest possible image quality even in the most difficult lighting conditions.

Using 2X-Dynamic technology, pixel-by-pixel analysis provides the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or compromising dynamic range.

XF-Dynamic

The highly accurate 15-bit (Dinion^{XF} cameras) or 20-bit (Dinion 2X) digital signal is automatically processed to optimally capture the detail in both the high and low light areas of the scene simultaneously, maximizing the information visible in the picture.

NightSense and SensUp

Dinion^{XF} Color cameras feature NightSense which increases sensitivity by 9 dB in monochrome mode. NightSense can be automatically activated in low light situations, or remotely using Bilinx.

Dinion^{XF} and Dinion 2X Day/Night cameras make optimal use of the available lighting by utilizing the built-in SensUp feature. By increasing the integration time on the CCD up to 10 times, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Default Shutter

When viewing moving objects a fast shutter speed is required. When using a fast shutter speed the lens opening or gain control needs to be increased to maintain the video signal. The camera sensitivity is limited by the fast shutter speed. The default shutter setting offers the best of all worlds, fast shutter speed as long as there is sufficient light, however as the light level falls, when other adjustments have been exhausted, the shutter reverts to the standard setting maintaining the cameras excellent sensitivity.

Auto Black

The automatic black level feature enhances contrast by compensating for reduced contrast (i.e. glare, fog, mist).

Programmable Modes

Dinion cameras support three independent operating modes. The three modes are preprogrammed for typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input

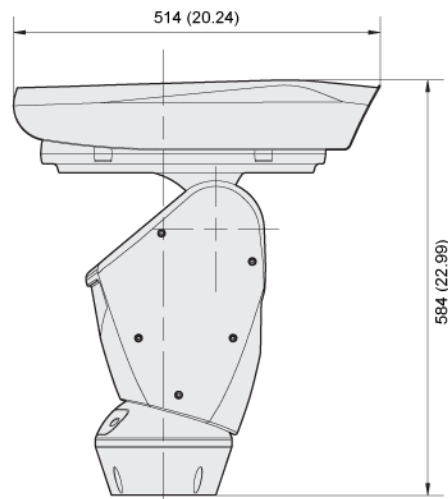
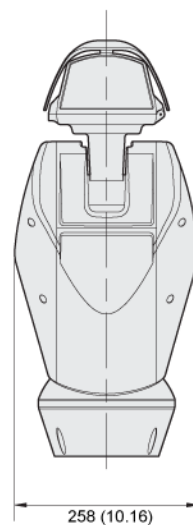
Infrared Illumination

The Bosch AEGIS UFLED, the world's first Intelligent-infrared illuminator, combines innovations in infrared technology and design to deliver absolute performance in night vision surveillance.

Constant Light technology compensates for LED degradation, a natural occurrence with all LED-based illuminators, to deliver a constant level of lighting performance throughout the life of the illuminator.

Powered by award-winning 3D-Diffuser technology, Bosch AEGIS UFLED delivers Even-Illumination which lights the foreground and background of the scene eliminating hotspots and underexposure.

HSPS Standard System Dimensions

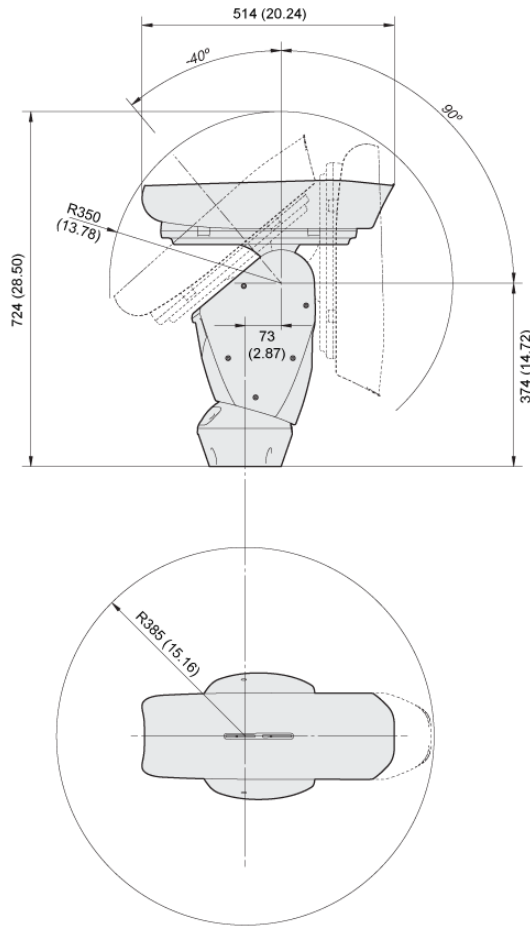
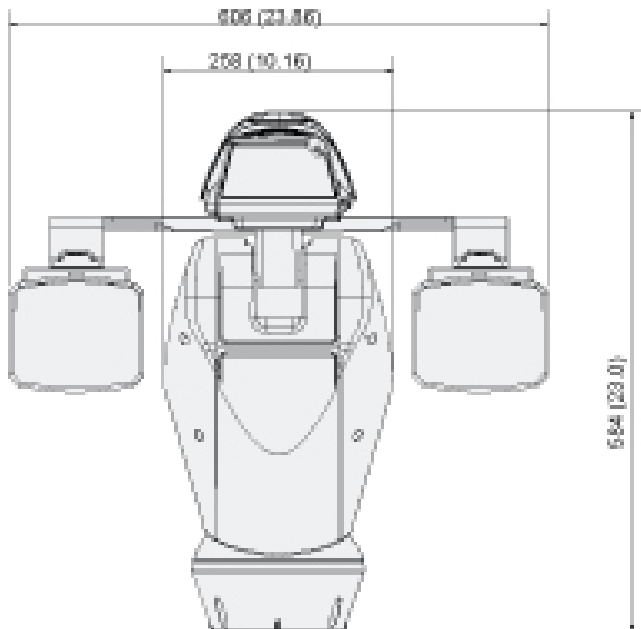
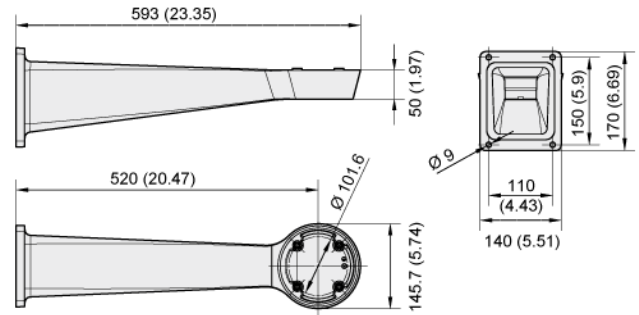
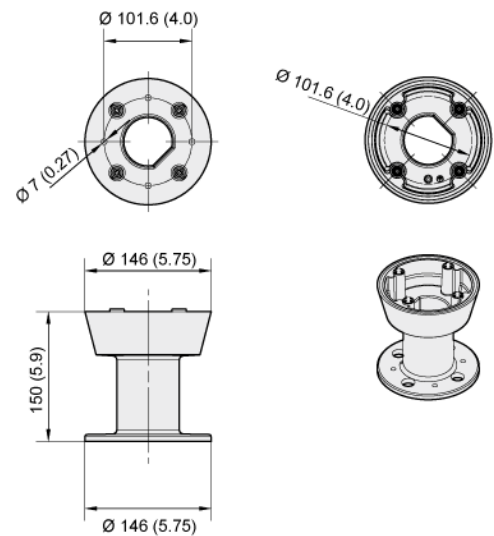
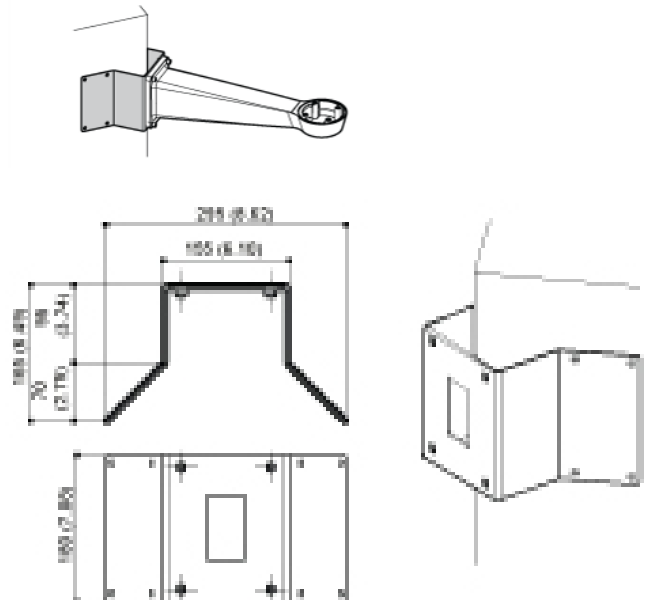
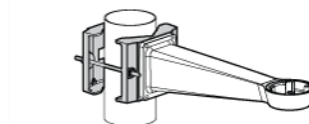


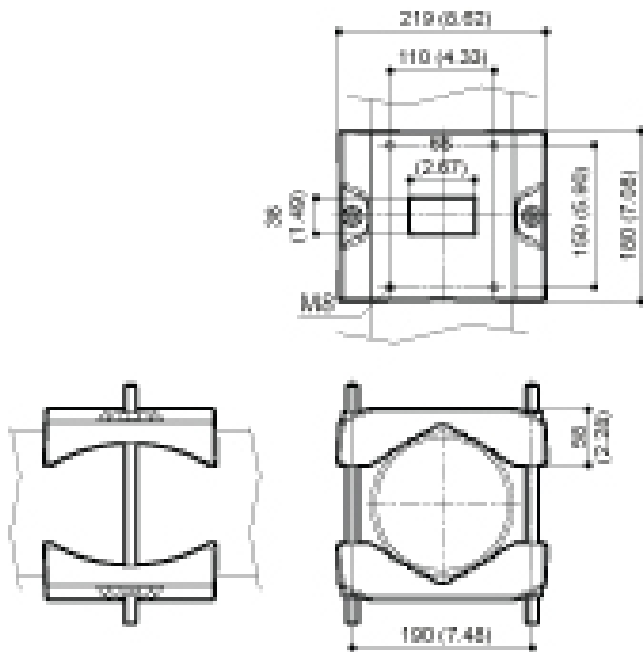
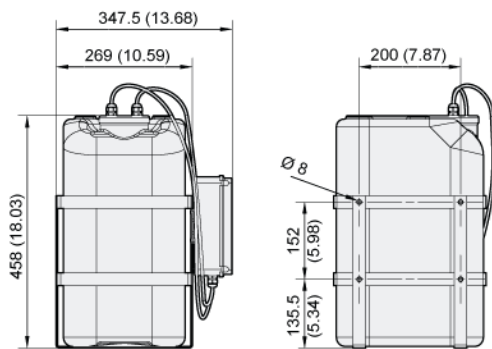
Certifications and Approvals

Safety	acc. to EN 60950 (CE), UL
Immunity	acc. to EN 50130-4 (CE)
	acc. to EN 55022 Class B (CE)
Emission	acc. to EN 61000-3-2 (CE)
	acc. to EN 61000-3-3 (CE)
Water/dust protection	IP 66 acc. to EN 60529

Installation/Configuration Notes

For more information on Dinion cameras (e.g. LTC 0498) and motorized zoom lenses (e.g. LTC 3783/51), please refer to their specific product datasheets.

**HSPS IR 360 System Dimensions****MTC-WUPH****MTC-PUPH (top of pole)****MTC-CORN-W****MTC-POLE-W (side of pole)**

**HAC-WAS05**

Dimensions—mm (in.)

Parts Included

Quantity	Component
1	Main Pan/Tilt System
1	Base unit with power supply
1	Pre-assembled Bosch Dinion ^{XF} Color or Dinion 2X Day/Night camera and motorized zoom lens assembly
1	Mounting kit (optional)
1	Illuminator bracket assembly (optional)
2	Bosch AEGIS UFLED Infrared Illuminators (optional)
1	Serial cable
1	Serial adapter
1	Installation manual
1	Set of mounting accessories <ul style="list-style-type: none"> • 4 mm Allen wrench • Bracket with fixing screws • Cable ties • Tube • Label

Technical Specifications**High-Speed Positioning System****Electrical**

Input Voltage

- Standard System 24 VAC
- IR 360 System 24 VAC

Power Draw (max.)

- Standard System 5 A
- IR 360 System 8 A

Input Frequency 50/60 Hz

Integrated Housing Input Thermostat heater, 24 VAC, 20 W max.

Camera Input 12 VDC, 800 mA

Lens Input +6 to +15 VDC, 200 mA

Wiper (optional) Input 24 VAC, 400 mA

Illuminator (optional) Input 24 VAC, 2 A + 2 A max.

Tour Control Autopan; Preset; Patrol

Presets 250 selectable (max. 99 via keyboard)

Preset / Area Names 20-character string

Preset Accuracy 0.02°

Data Set-up Flash memory

Serial RS-232, Sub-D for firmware upgrade

Protocols Bilinx, Biphase, Pelco-D, and third party protocols on RS-485

Supported Platforms DiBos, Divar, Allegiant

Max. Addressable Units Bilinx/Biphase: 998 (dipswitch setting)
Pelco-D: 255 (dipswitch setting)

Firmware Upgrades RS-232 interface

Configuration Modes Via PC or OSD

Configuration Interface RS-485

MechanicalDimensions (H x W x D) 584 x 258 x 514 mm
(23.0 x 10.2 x 20.2 in.)

Weight Approx. 14 kg (31 lb)

Mounting Top mount (OTT)

Color Light grey (RAL 7035)

Material Die cast and extruded aluminum, ABS

Rotation

Horizontal 360° continuous

Vertical -90° to +40°

Speed**Manual****Patrol / Autopan**

Horizontal (pan)

- Standard System 0.1° to 100°/s
- IR 360 System 0.1° to 40°/s

Vertical (tilt)

- Standard System 0.1° to 40°/s
- IR 360 System 0.1° to 30°/s

Static / Dynamic Torque

Horizontal 20 Nm

Vertical 20 Nm

Transmission Toothed belt

Environmental

Operating Temperature	−20 °C to +50 °C (−4 °F to +122 °F)
Storage Temperature	−20 °C to +60 °C (−4 °F to +140 °F)
Humidity	<90% relative humidity (non-condensing)
Enclosure Protection	IP 66

Camera Specifications**UPH-C485 Series**

Camera Model	LTC 0485 Dinion^{XF} Color, 1/3-inch Digital CCD Camera
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Active Pixels

NTSC	768 H x 492 V
PAL	752 H x 582 V

Sensitivity (3200 K)

Sensitivity (full video) ⁴	2.4 lux (0.24 fc)
Sensitivity 50 IRE ⁴	0.59 lux / 0.24 lux (NightSense) (0.059 fc / 0.024 fc (NightSense))
Minimum Illumination ⁴	0.24 lux / 0.10 lux (NightSense) (0.024 fc / 0.01 fc (NightSense))
Minimum Illumination with SensUp	0.024 lux / 0.010 lux (NightSense) (0.0024 fc / 0.0010 fc (NightSense))
Horizontal Resolution	540 TVL
Signal-to-Noise Ratio	> 50 dB
Video Output	1 Vpp, 75 Ohm
Y/C Output	Y: 1 Vpp / C: 0.3 Vpp
Synchronization	Internal, Line Lock, HV-lock and genlock (Burst lock) selectable
Electronic Shutter	Auto (1/60 [1/50] to 1/500000), fixed, flickerless, default
SensUp	Off, automatic continuous up to 10x
Auto Black	On, off selectable
Range	32x dynamic range enhancement
Dynamic Noise Reduction	Auto, off selectable
Contour	Sharpness enhancement level selectable
BLC	Off, area and level selectable
Gain	Auto (maximum level selectable to 28 dB) or fixed level selectable
White Balance	ATW (2500–10000 K), AWB hold, manual WB selectable
VMD	Four (4) area, sensitivity selectable
Alarm Output	VMD or Bilinx
Alarm Input (TTL)	Profile switching, +5 V nominal, +40 VDC max.
Alarm Output Relay	Max. 30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA
External Synchronal Input	75 Ohm or High Impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with coaxial communication)

Camera ID	16-character editable string, position selectable
Remote Control	Bi-directional coaxial communication

4. F1.2, 89% reflection, SensUp Off

UPH-C498 Series

Camera Model	LTC 0498 Dinion 2X Day/Night, 1/3-inch Digital CCD Camera
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Active Pixels

NTSC	768 H x 494 V
PAL	752 H x 582 V

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
Color	2.4 lx (0.24 fc)	0.59 lx (0.059 fc)	0.24 lx (0.024 fc)
Color + SensUp 10x	0.24 lx (0.024 fc)	0.059 lx (0.0059 fc)	0.024 lx (0.0024 fc)
Monochrome	-	0.08 lx (0.008 fc)	0.038 lx (0.0038 fc)
Monochrome + SensUp 10x	-	0.008 lx (0.0008 fc)	0.0038 lx (0.00038 fc)
Horizontal Resolution	540 TVL		
Signal-to-Noise Ratio	>50 dB		
Video Output	Composite video 1 Vpp, 75 ohm		
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable		
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable		
SensUp	Adjustable from Off up to 10x		
Day/Night	Color, Mono, Auto		
Auto Black	Automatic continuous, Off		
Dynamic Engine	XF-Dynamic, 2X-Dynamic, SmartBLC		
Dynamic Range	120 dB (20-bit image processing)		
Dynamic Noise Reduction	Auto, On/off selectable		
Sharpness	Sharpness enhancement level selectable		
SmartBLC	On/Off		
AGC	AGC On/Off (0 dB) selectable		
Peak White Invert	On/Off		
White Balance	ATW, ATWhold and manual (2500–10000 K)		
Alarm Output	VMD or Bilinx		
Alarm Input (TTL)	Profile switching, +3.3 V nominal, +40 VDC max.		
Alarm Output Relay	30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA		
External Synchronization Input	75 Ohm or High Impedance selectable		
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication)		
Camera ID	17-character editable string, position selectable		

Test Pattern Generator	Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Modes	Six (6) preset programmable modes
Remote Control	Bilinx coaxial bi-directional communication
Video Motion Detection	One area, fully programmable
Controls	OSD with soft-key operation (multi-lingual)

UPH-C610 Series

Camera Model	LTC 0610 Dinion^{XF} Color, 1/2-inch Digital CCD Camera
Active Pixels	
NTSC	768 H x 492 V
PAL	752 H x 582 V

Sensitivity (3200 k)

Sensitivity (full video) ⁵	1.4 lx (0.14 fc)
Sensitivity 50 IRE ⁵	0.35 lux / 0.14 lux (NightSense) (0.035 fc / 0.014 fc (NightSense))
Minimum Illumination ⁵	0.18 lux / 0.08 lux (NightSense) (0.018 fc / 0.008 fc (NightSense))
Minimum Illumination with SensUp	0.018 lux / 0.008 lux (NightSense) (0.0018 fc / 0.0008 fc (NightSense))
Horizontal Resolution	540 TVL
Signal-to-Noise-Ratio	> 50dB
Video Output	1Vpp, 75 Ohm
Y/C Output	Y: 1 Vpp / C: 0.3 Vpp
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable
Shutter	Auto (1/60 [1/50] to 1/500000), fixed, flickerless, default
Night Sense	Auto, Forced, Off
SensUp	Off, automatic continuous up to 10x
Auto Black	On/Off selectable
Dynamic Range	32x dynamic range enhancement
Dynamic Noise Reduction	Auto, Off selectable
Contour	Sharpness enhancement level selectable
BLC	Off, area and level selectable
Gain	Auto (maximum level selectable to 28 dB) or fixed level selectable
White Balance	ATW (2500–10000 K), AWB hold, manual WB selectable
VMD	Four (4) area, sensitivity selectable
Alarm Output	VMD or Bilinx
Alarm Input (TTL)	Profile switching, +5 V nominal, +40 VDC max.
Alarm Output Relay	Max. 30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA
External Synchronal Input	75 Ohm or High Impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic setup in combination with coaxial communication)

Sensitivity (3200 k)

Camera ID	16-character editable string, position selectable
Remote Control	Bi-directional coaxial communication

5. F/1.2, 89% reflection, SensUp off

UPH-C630 Series

Camera Model	LTC 0630 Dinion 2X Day/Night, 1/2-inch Digital CCD Camera
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Active Pixels	
NTSC	768 H x 494 V
PAL	752 H x 582 V

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
Color	1.4 lx (0.14 fc)	0.31 lx (0.031 fc)	0.18 lx (0.018 fc)
Color + SensUp 10x	0.14 lx (0.014 fc)	0.031 lx (0.0031 fc)	0.018 lx (0.0018 fc)
Monochrome	-	0.052 lx (0.0052 fc)	0.024 lx (0.0024 fc)
Monochrome + SensUp 10x	-	0.0052 lx (0.00052 fc)	0.0024 lx (0.00024 fc)
Horizontal Resolution	540 TVL		
Signal-to-Noise Ratio	>50 dB		
Video Output	Composite video 1 Vpp, 75 ohm		
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable		
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable		
SensUp	Adjustable from Off up to 10x		
Day/Night	Color, Mono, Auto		
Auto Black	Automatic continuous, Off		
Dynamic Engine	XF-Dynamic, SmartBLC		
Dynamic Range	96 dB (16-bit image processing)		
Dynamic Noise Reduction	Auto, On/Off selectable		
Sharpness	Sharpness enhancement level selectable		
SmartBLC	On/Off		
AGC	AGC On/OffOff (0 dB) selectable		
Peak White Invert	On/Off		
White Balance	ATW, ATWhold and manual (2500–10000 K)		
Alarm Output	VMD or Bilinx		
Alarm Input (TTL)	Profile switching, +3.3 V nominal, +40 VDC max.		
Alarm Output Relay	30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA		
External Synchronization Input	75 Ohm or High Impedance selectable		
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication)		
Camera ID	17-character editable string, position selectable		

Test Pattern Generator	Color bars 100%, Greyscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Modes	Six (6) preset programmable modes
Remote Control	Bilinx coaxial bi-directional communication
Video Motion Detection	One (1) area, fully programmable
Controls	OSD with soft-key operation (multi-lingual)

Lens Specifications

Model L8585 (LTC 3783/51)	
10x optical	f=8.5 (wide) to 85.0 mm (tele), F1.6
Angle of view (H)	31.3° (wide) to 3.3° (tele)
Model L8120 (LTC 3293/30)	
15x optical	f=8.0 (wide) to 120.0 mm (tele), F1.6
Angle of view (H)	32.5° (wide) to 2.3° (tele)
Model L86154 (LTC 3793/51)	
18x optical	f=8.6 (wide) to 154.0 mm (tele), F2.5
Angle of view (H)	30.5° (wide) to 1.82° (tele)

AEGIS UFLED Illuminator Specifications

LEDs	High-efficiency LED array with current limited integral power circuit
Number of LEDs	18 high-efficiency surface mount LEDs
Beam Patterns	10°, 20°, or 30°
Wavelength	850 nm
Power Draw	26 to 45 W (45 W max. power). Power consumption will vary over time due to the infrared illuminator's optical output control which compensates for LED degradation and ambient temperature fluctuations.
Input Voltage	12 to 40 VDC or 24 VAC ±30%
Temperature Range	-50°C to +50°C (-58°F to +122°F) max. on full power
Environment	IP67
Construction	Robust, aluminum construction with acrylic front fascia
Weight	1.4 kg (3.1 lb)
Dimensions (Single Illuminator)	152 x 188 x 115 mm (6.0 x 7.4 x 4.5 in.)
Color	Black anodized heat sink with black front fascia
Power Cable	Supplied with IP67 power connector and 5 m (16.4 ft) of connecting lead.
Bracket	Wall mount U-bracket supplied

IR Performance Ranges

Model Combination	Beam Pattern	Achievable Distance ⁶
UFLED10-8BD	10°	267 m (876 ft)
UFLED10-8BD	10°	
UFLED10-8BD	10°	230 m (755 ft)
UFLED20-8BD	20°	
UFLED10-8BD	10°	218 m (715 ft)
UFLED30-8BD	30°	
UFLED20-8BD	20°	180 m (590 ft)
UFLED20-8BD	20°	

Model Combination	Beam Pattern	Achievable Distance ⁶
UFLED20-8BD	20°	168 m (551 ft)
UFLED30-8BD	30°	
UFLED30-8BD	30°	132 m (433 ft)
UFLED30-8BD	30°	

6. Actual illumination distance achieved is dependent on camera and lens characteristics.

Ordering Information

UPH-C485N-L8120 Camera/Lens Assembly	UPH-C485N-L8120
LTC 0485 Dinion ^{XF} 1/3 in. NTSC color camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C485P-L8120 Camera/Lens Assembly	UPH-C485P-L8120
LTC 0485 Dinion ^{XF} 1/3 in. PAL color camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C498N-L8120 Camera/Lens Assembly	UPH-C498N-L8120
LTC 0498 Dinion 2X 1/3 in. NTSC day/night camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C498P-L8120 Camera/Lens Assembly	UPH-C498P-L8120
LTC 0498 Dinion 2X 1/3 in. PAL day/night camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C610N-L8120 Camera/Lens Assembly	UPH-C610N-L8120
LTC 0610 Dinion ^{XF} 1/2 in. NTSC color camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C610P-L8120 Camera/Lens Assembly	UPH-C610P-L8120
LTC 0610 Dinion ^{XF} 1/2 in. PAL color camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C630N-L8120 Camera/Lens Assembly	UPH-C630N-L8120
LTC 0630 Dinion 2X 1/2 in. NTSC day/night camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C630P-L8120 Camera/Lens Assembly	UPH-C630P-L8120
LTC 0630 Dinion 2X 1/2 in. PAL day/night camera with an LTC 3293/30 8-120 mm zoom lens	
UPH-C498N-L8585 Camera/Lens Assembly	UPH-C498N-L8585
LTC 0498 Dinion 2X 1/3 in. NTSC day/night camera with an LTC 3783/51 8.5-85 mm IR-corrected lens	
UPH-C498P-L8585 Camera/Lens Assembly	UPH-C498P-L8585
LTC 0498 Dinion 2X 1/3 in. PAL day/night camera with an LTC 3783/51 8.5-85 mm IR-corrected lens	

Ordering Information

UPH-C630N-L8585 Camera/Lens Assembly LTC 0630 Dinion 2X 1/2 in. NTSC day/night camera with an LTC 3783/51 8.5-85 mm IR-corrected lens	UPH-C630N-L8585
UPH-C630P-L8585 Camera/Lens Assembly LTC 0630 Dinion 2X 1/2 in. PAL day/night camera with an LTC 3783/51 8.5-85 mm IR-corrected lens	UPH-C630P-L8585
UPH-C498N-L86154 Camera/Lens Assembly LTC 0498 Dinion 2X 1/3 in. NTSC day/night camera with an LTC 3793/51 8.6-154 mm IR-corrected zoom lens	UPH-C498N-L86154
UPH-C498P-L86154 Camera/Lens Assembly LTC 0498 Dinion 2X 1/3 in. PAL day/night camera with an LTC 3793/51 8.6-154 mm IR-corrected zoom lens	UPH-C498P-L86154
UPH-C630N-L86154 Camera/Lens Assembly LTC 0630 Dinion 2X 1/2 in. NTSC day/night camera with an LTC 3793/51 8.6-154 mm IR-corrected zoom lens	UPH-C630N-L86154
UPH-C630P-L86154 Camera/Lens Assembly LTC 0630 Dinion 2X 1/2 in. PAL day/night camera with an LTC 3793/51 8.6-154 mm IR-corrected zoom lens	UPH-C630P-L86154
UPH-HD-24 Standard High-Speed Positioning System, 24 VAC High-performance pan/tilt head, camera housing, telemetry receiver, 24 VAC, 50/60 Hz	UPH-HD-24
UPH-HD-230 Standard High-Speed Positioning System, 230 VAC High-performance pan/tilt head, camera housing, telemetry receiver, 230 VAC, 50/60 Hz	UPH-HD-230
UPH-HWD-230 Standard High-Speed Positioning System with a wiper, 230 VAC High-performance pan/tilt head, camera housing, telemetry receiver, and wiper, 230 VAC, 50 Hz	UPH-HWD-230
UPH-HWD-120 Standard High-Speed Positioning System with a wiper, 120 VAC High-performance pan/tilt head, camera housing, telemetry receiver, and wiper, 120 VAC, 60 Hz	UPH-HWD-120
UPH-HWD-24 Standard High-Speed Positioning System with a wiper, 24 VAC High-performance pan/tilt head, camera housing, telemetry receiver, and wiper, 24 VAC, 50/60 Hz	UPH-HWD-24
UPH-HWDIR-24 IR 360 High-Speed Positioning System with a wiper, 24 VAC High-performance pan/tilt head, camera housing, telemetry receiver, and bracket assembly for IR two illuminators, 24 VAC, 50/60 Hz	UPH-HWDIR-24

Ordering Information

MTC-PUPH Outdoor Pole Mount for mounting a UPH series unit to the top of a pole	MTC-PUPH
MTC-WUPH Outdoor Wall Mount for UPH series	MTC-WUPH
MTC-CORN-W Corner Adapter for MTC-WUPH	MTC-CORN-W
MTC-POLE-W Pole Adapter for MTC-WUPH for mounting a UPH series unit to the side of a pole	MTC-POLE-W
Accessories	
UFLED10-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 10°, 850 nm	UFLED10-8BD
UFLED20-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 20°, 850 nm	UFLED20-8BD
UFLED30-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 30°, 850 nm	UFLED30-8BD
HAC-WAS05-20 24 VAC Washer 24 VAC washer inst. 5M 25L	HAC-WAS05-20
HAC-WAS05-50 230 VAC Washer 230 VAC washer inst. 5M 25L	HAC-WAS05-50
HAC-WAS30-50 230 VAC Washer 230 VAC washer inst. 30M 25L	HAC-WAS30-50
WPTV244300UL 4-channel Outdoor Power Supply, 120 VAC Four-channel, 120 VAC input, 24/28 VAC output, 12.5 A total output, outdoor	WPTV244300UL

NBC-455 Dinion IP Cameras



Features

- ▶ **1/3-inch color CCD with progressive scan**
- ▶ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**
- ▶ **Intelligence at the edge**
- ▶ **ONVIF conformant**
- ▶ **Auto lens detection including Lens Wizard**

Dinion IP cameras are progressive scan CCD color cameras. They can tri-stream video simultaneously – on two H.264 streams and one M-JPEG stream. Features such as multicasting, internet streaming and iSCSI recording are fully supported. Dinion IP cameras have built-in video motion detection and additional processing power for video content analysis systems.

To simplify installation, automatic lens detection and easy OSD installation procedures are provided.

Dinion IP cameras include picture enhancement features such as NightSense for low light scenes and Autoblack for low contrast scenes.

Supported by the award-winning Dinion digital imaging technology, they provide a proven, dependable solution for many security and surveillance requirements.

Functions

Progressive scan

To capture sharp images, even in busy scenes with high motion content, the Dinion camera uses progressive scan technology.

A quality image

With a 1/3-inch color CCD and Bosch's advanced digital signal processing, the Dinion IP provides professional image quality. Automatically activate the NightSense feature to extend sensitivity under low-light conditions by a factor of three in monochrome operation. Autoblack improves the overall contrast of an image in low contrast scenes, such as foggy weather conditions.

Efficient bandwidth and storage management

The cameras use H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution. The bandwidth of an H.264 stream using Main profile at 4CIF resolution is about the same as one MPEG-4 stream at 2CIF resolution. Bosch's innovative tri-streaming feature enables Dinion IP cameras to generate two independent H.264 streams and one M-JPEG stream simultaneously. This allows streaming of high-quality H.264 images for live viewing and recording while streaming M-JPEG images to another device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

Dinion IP cameras offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly, as well as Network Video Recorders (NVRs). The iSCSI storage target support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network.

Standard intelligence

With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system, that is built into all camera versions, is the perfect solution for applications where basic video content analysis features are required. This motion analysis algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper-detection capabilities.

Hardware enhanced

The hardware-enhanced version of the camera gives you the opportunity to upgrade the video content analysis features of the camera with the more advanced Intelligent Video Analysis (IVA) option. This option bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixels, texture, and object direction, and is activated by installing a license.

ONVIF conformance

The camera conforms to the ONVIF (Open Network Video Interface Forum) specification which guarantees interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information. They are automatically discovered and connected to network applications such as video management systems.

Unsurpassed flexibility

There are many ways to access the camera's video: on a PC using a web browser, with the Bosch Video Management System, or with VIDOS. The camera is also ideal for use with a Divar 700 Series digital video recorder. By routing a video stream to a Bosch video decoder, you can also present the video with ultimate clarity on an analog monitor.

Cost effective, simple installation

Three power options, PoE (Power-over-Ethernet), 24 VAC and 12 VDC are available. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source. To increase system reliability, the camera can be simultaneously connected to both PoE and 12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used, which will allow continuous operation, even during a power failure.

For trouble free network cabling, the cameras support Auto-MDIX.

Dinion IP cameras can be configured using the control buttons on the camera as an alternative to configuration over IP. The On-Screen Display (OSD) simplifies back focus adjustment and network configuration, minimizing installation and support costs. The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to maintain proper focus.

Easy Upgrade

Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Access Security

Various security levels are available for accessing the network, the camera, and the data channels. As well as password protection with three levels, 802.1x authentication using a RADIUS is supported. To secure Web browser access use HTTPS with a SSL certificate stored in the camera. For total data protection, the video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional Encryption Site License.

Typical applications

- Museums and art galleries
- Shopping centers
- Offices
- Schools, colleges and universities
- Petrol / gas station

Certifications and Approvals

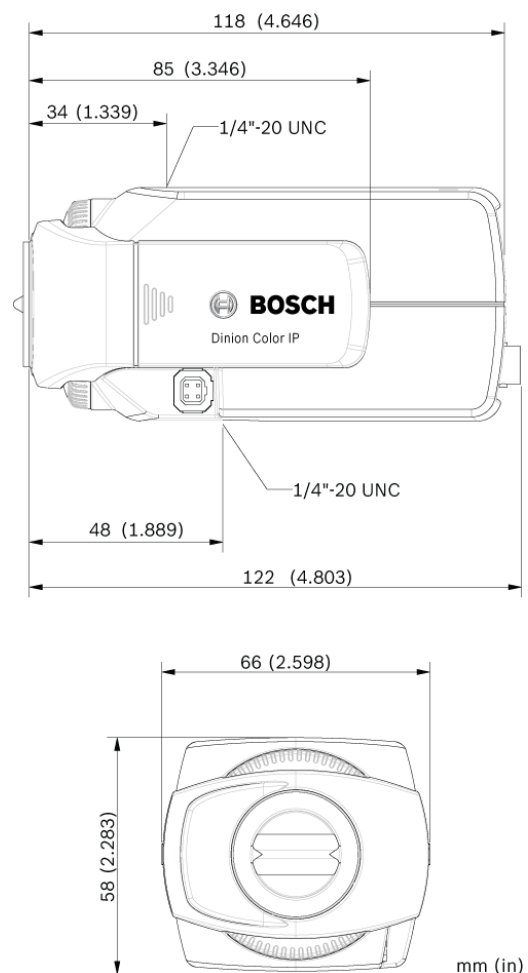
Region	Certification
Europe	CE
USA	FCC + UL

Electro Magnetic Compatibility

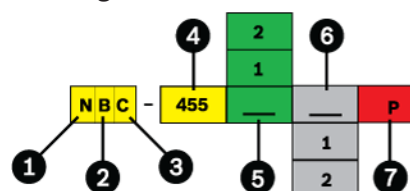
Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 FCC Part 15
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with 500 g (1.1 lb) lens as per IEC60068-2-6 (5 m/s ² , operational)

Installation/Configuration Notes

Dimensions



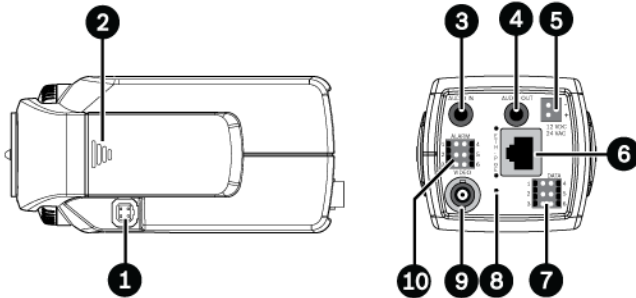
Ordering chart



- | | |
|--------------------------|--|
| 1 N: Network camera | 5 1: PAL, 50 Hz;
2: NTSC, 60Hz |
| 2 B: Dinion fixed body | 6 1: Motion+;
2: Designed for IVA * |
| 3 C: Color | 7 P: PoE |
| 4 455 Dinion performance | |

No license included

Controls



- | | |
|----------------------|-----------------------------------|
| 1 Lens connector | 6 10/100 Base-T Fast Ethernet |
| 2 Control buttons | 7 Data (RS485/422/232) |
| 3 Audio in | 8 Reset button |
| 4 Audio out | 9 BNC video output (service mode) |
| 5 Power supply input | 10 Alarm in, relay out |

Parts Included

Quantity Components

- | | |
|---|---|
| 1 | NBC-455 Series Dinion IP Camera |
| 1 | Spare lens connector |
| 1 | Safety Instructions |
| 1 | Quick Install Guide |
| 1 | Mini DVD-ROM with manuals, software and tools |
| 1 | Power connector |
| 1 | Alarm I/O connector |
| 1 | Data connector |

Technical Specifications

Electrical

Model No.	Rated Voltage	Rated Frequency
NBC-455-1xP	24 VAC ±10%	50 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
NBC-455-2xP	24 VAC ±10%	60 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
Current Consumption	450 mA 550 mA IVA (12 VDC)	
	450 mA 550 mA IVA (24 VAC)	
	200 mA 250 mA IVA (PoE 48 VDC)	

Sensor

Type	1/3-inch, CCD
Active Pixels (PAL)	752 x 582
Active Pixels (NTSC)	768 x 494

Video

Video compression	H.264 (ISO/IEC 14496-10); M-JPEG, JPEG
Data rate	9.6 Kbps to 6 Mbps
Resolution	Horizontal x vertical (PAL/NTSC ips)
• 4CIF	704 x 576/480 (25/30 ips)
• CIF	352 x 288/240 (25/30 ips)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	I, IP
Frame rate	1 to 50/60 (PAL/NTSC) H.264 1 to 25/30 (PAL/NTSC) M-JPEG

Video Out

Signal	Analog composite (NTSC or PAL), service
Connector	BNC, 75 Ohm
Horizontal resolution	540 TVL
Video S/N	50 dB

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Full video (100 IRE)	Usable picture (50 IRE)	Minimum illumination (30 IRE)
Color	2.6 lx (0.26 fc)	0.65 lx (0.065 fc)	0.30 lx (0.03 fc)
NightSense	1.04 lx (0.104 fc)	0.26 lx (0.026 fc)	0.12 lx (0.012 fc)

Color/NightSense	Auto, Forced
Dynamic Range	60 dB (10-bit image processing)
Signal-to-noise Ratio	> 50 dB
BLC	Center window weighting
Gain	20 dB (max)
White Balance	ATW (2500 to 10000 K), ATWHold
Shutter	Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Auto Black	Automatic continuous, Off
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Saw-tooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock, selectable
Lens Mount	CS (max lens protrusion 5 mm, 0.2 inch) and C-mount compatible
Lens Types	Manual, DC- and Video-Iris auto-detect with override DC-iris drive: max. 50 mA continuous Video-iris: 11.5 VDC ±0.5, max. 50 mA continuous
Controls	OSD with soft-key operation (multi-lingual)

Audio

Standard G.711	300 Hz to 3.4 kHz at 8 kHz sampling rate
Signal-to-noise ratio	> 50 dB

Input/output

Audio	1 x mono line in, 1 x mono line out
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- connector 3.5 mm stereo jack
- signal line in 9 kohm typical, 5.5 Vpp max
- signal line out 3.0 Vpp at 10 kohm typical, 2.3 Vpp at 32 Ohm typical, 1.7 Vpp at 16 Ohm typical

Alarm	2 inputs
• connector	Clamp (non-isolated closing contact)
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kohm pull-up resistor)

Relay	1 output
• connector	Clamp
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA

Data port	RS-232/422/485
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Software Control

Unit Configuration	Via web browser or Configuration Manager
Flicker Control	50/60 Hz, selectable
Software update	Flash ROM, remote programmable

Network

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, 802.1x, UPnP
Encryption	TLS 1.0, SSL, AES (optional)
Ethernet	STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE supply	IEEE 802.3af compliant

Mechanical

Dimensions (H x W x L)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	524 g (1.155 lb) without lens
Color	RAL 7035 Light Gray
Tripod Mount	Bottom and top 1/4-inch 20 UNC

Environmental

Operating Temperature*	-20°C to +50°C (-4°F to 122°F)
Operating Temperature (IVA)*	-20°C to +45°C (-4°F to 113°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

* for extended temperature range use HAC-IPCCC

Ordering Information

NBC-455-11P Dinion IP Camera Dinion Color IP Camera, 1/3-inch Progressive Scan, H.264 dual stream, PAL, 50Hz, Motion+, PoE	NBC-455-11P
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NBC-455-21P Dinion IP Camera Dinion Color IP Camera, 1/3-inch Progressive Scan, H.264 dual stream, NTSC, 60Hz, Motion+, PoE	NBC-455-21P
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NBC-455-12P Dinion IP Camera Dinion Color IP Camera, 1/3-inch Progressive Scan, H.264 dual stream, PAL, 50Hz, Designed for IVA, PoE	NBC-455-12P
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NBC-455-22P Dinion IP Camera Dinion Color IP Camera, 1/3-inch Progressive Scan, H.264 dual stream, NTSC, 60Hz, Designed for IVA, PoE	NBC-455-22P
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Accessories

LTC 3361/50 Varifocal Lens 1/3-inch, 2.8 – 10 mm, manual-iris, CS-mount F1.4-close	LTC3361/50
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LTC 3371/21 Varifocal Lens 1/3-inch, 5 to 50 mm, manual iris, CS-mount F1.4-close	LTC 3371/21
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LTC 3361/32 Varifocal Lens 1/3-inch, 3.0 – 8 mm, manual-iris, CS-mount F1.0-close	LTC3361/32
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LTC 3361/41 Varifocal Lens 1/3-inch, 2.8 to 12 mm, manual-iris, CS-mount F1.4-close	LTC 3361/41
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LTC 3364/50 Varifocal Lens 1/3-inch, 2.8 – 10 mm, DC-iris, CS-mount, F1.4-360, 4 pin	LTC3364/50
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LTC 3374/21 Varifocal Lens 1/3-inch, 5 to 50 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC 3374/21
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LTC 3364/60 Varifocal Lens 1/3-inch, 3.5 – 8 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3364/60
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LTC 3364/41 Varifocal Lens 1/3-inch, 2.8 to 12 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC 3364/41
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LTC 3374/50 Varifocal Lens 1/3-inch, 5 – 50 mm, DC-iris, CS-mount F1.7-360, 4-pin	LTC3374/50
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UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	UPA-2410-60
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UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
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UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
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UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
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HAC-IPCCC Camera Cooling Case For use with Dinion IP cameras in combination with HSG and UHO Series housings equipped with an optional blower	HAC-IPCCC
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Ordering Information

Software Options

MVC-FIVA4-CAM

IVA 4.0 VCA software license for IP camera/
dome (e-license)

MVC-FIVA4-CAM
MVC-FENC-AES BVIP AES 128 Bit
Encryption

BVIP AES 128-bit encryption site license.
This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.

MVC-FENC-AES

NBN-498 Dinion2X Day/Night IP Cameras



Features

- ▶ **1/3-inch Day/Night CCD with progressive scan**
- ▶ **20-bit image processing technology**
- ▶ **Wide Dynamic Range, 2X-dynamic engine and SmartBLC**
- ▶ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**
- ▶ **Intelligence at the edge**
- ▶ **ONVIF conformant**

Dinion2X Day/Night IP cameras are progressive scan CCD cameras. They can tri-stream video simultaneously – on two H.264 streams and one M-JPEG stream. Equipped with 20-bit DSP with 2X-dynamic, they have a wide dynamic range for a sharper, more detailed image with outstanding color reproduction.

Features such as multicasting, internet streaming and iSCSI recording are fully supported. Dinion2X Day/Night IP cameras have built-in video motion detection and additional processing power for video content analysis systems.

Supporting the award-winning Dinion2X digital imaging technology, they provide proven, dependable service for the most demanding security and surveillance requirements, day or night.

Functions

Progressive scan

To capture sharp images, even in busy scenes with high motion content, the Dinion camera uses progressive scan technology.

Superior image quality

With a 1/3-inch CCD and Bosch's advanced digital signal processing, the Dinion2X Day/Night IP camera provides outstanding image quality in virtually all situations. The highly accurate 20-bit digital signal is automatically processed to reveal every detail of the image in both the high and low-light areas of the scene simultaneously.

20-bit Image Processing

The highly accurate digital signal processing optimally captures the detail in both bright highlights and deep shadows simultaneously. By combining 20-bit image processing and wide dynamic range, the Dinion2X maximizes the information visible in the picture even with strong backlight.

Wide Dynamic Range

The superior wide dynamic range performance for all lighting conditions reveals details previously unseen.

2X-Dynamic and SmartBLC

Using 2X-Dynamic technology, pixel-by-pixel analysis provides the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or without compromising dynamic range. Features such as Autoblack and Sharpness further improve the details in a scene, pixel by pixel.

Efficient bandwidth and storage management

The cameras use H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution. The bandwidth of an H.264 stream using Main profile at 4CIF resolution is about the same as one MPEG-4 stream at 2CIF resolution. Bosch's innovative tri-streaming feature enables Dinion IP cameras to generate two independent H.264 streams and one M-JPEG stream simultaneously. This allows streaming of high-quality H.264 images for live viewing and recording while streaming M-JPEG images to another device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

Dinion IP cameras offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly, as well as Network Video Recorders (NVRs). The iSCSI storage target support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network.

Standard intelligence

With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system, that is built into all camera versions, is the perfect solution for applications where basic video content analysis features are required. This motion analysis algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper-detection capabilities.

Hardware enhanced

The hardware-enhanced version of the camera gives you the opportunity to upgrade the video content analysis features of the camera with the more advanced Intelligent Video Analysis (IVA) option. This option bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixels, texture, and object direction, and is activated by installing a license.

ONVIF conformance

The camera conforms to the ONVIF (Open Network Video Interface Forum) specification which guarantees interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information. They are automatically discovered and connected to network applications such as video management systems.

Unsurpassed flexibility

There are many ways to access the camera's video: on a PC using a web browser, with the Bosch Video Management System, or with VIDOS. The camera is also ideal for use with a Divar 700 Series digital video recorder. By routing a video stream to a Bosch video decoder, you can also present the video with ultimate clarity on an analog monitor.

Cost effective, simple installation

Three power options, PoE (Power-over-Ethernet), 24 VAC and 12 VDC are available. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source. To increase system reliability, the camera can be simultaneously connected to both PoE and 12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used, which will allow continuous operation, even during a power failure.

For trouble free network cabling, the cameras support Auto-MDIX.

Dision IP cameras can be configured using the control buttons on the camera as an alternative to configuration over IP. The On-Screen Display (OSD) simplifies back focus adjustment and network configuration, minimizing installation and support costs. The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to maintain proper focus.

Easy Upgrade

Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Access Security

Various security levels are available for accessing the network, the camera, and the data channels. As well as password protection with three levels, 802.1x authentication using a RADIUS is supported. To secure Web browser access use HTTPS with a SSL certificate stored in the camera. For total data protection, the video

and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional Encryption Site License.

Programmable Modes

Six independent, pre-programmed operating modes support typical applications, but are fully programmable for individual situations.

Day/Night switching

In night mode, the camera enhances low light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera can switch from color to monochrome mode automatically by sensing the illumination level, manually via the alarm input, or remotely via a web browser. An internal, through-the-lens IR detector enhances monochrome mode stability by preventing the camera from returning to color mode when IR-illumination is dominant.

Privacy masking

Four different privacy zones allow specific parts of a scene to be blocked. A mask for any part of the scene can be pre-programmed.

Default Shutter

The default shutter speed captures fast moving objects when sufficient light is available. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

SensUp Dynamic

By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Typical applications

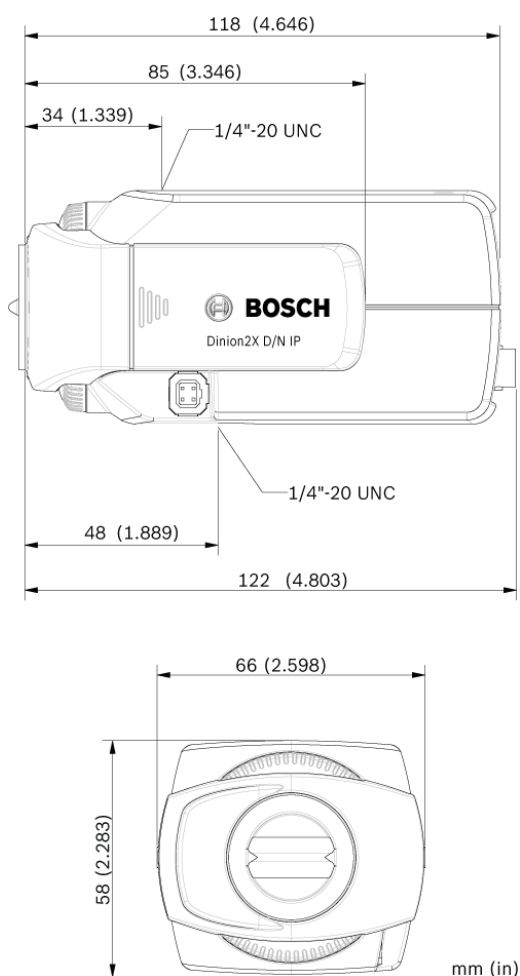
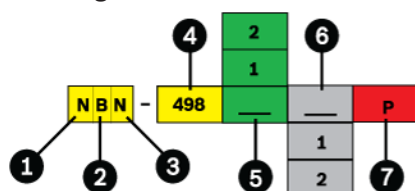
- Prisons and correctional facilities
- Traffic monitoring (air, land and sea)
- Hotels, bars and nightclubs
- Commercial and government buildings
- City surveillance and safety
- Border control

Certifications and Approvals

Region	Certification	
Europe	CE	
USA	FCC	+ UL

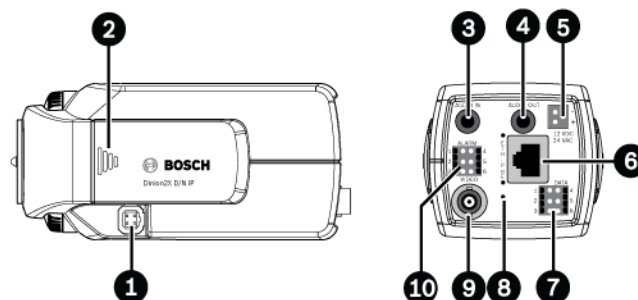
Electro Magnetic Compatibility

Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 FCC Part 15
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with 500 g (1.1 lb) lens as per IEC60068-2-6 (5 m/s ² , operational)

Installation/Configuration Notes**Dimensions****Ordering chart**

- | | |
|----------------------------|---------------------------------------|
| 1 N: Network camera | 5 1: PAL, 50 Hz
2: NTSC, 60Hz |
| 2 B: Fixed body | 6 1: Motion+
2: Designed for IVA * |
| 3 N: Day/Night | 7 P: PoE |
| 4 498:Dinion2X performance | |

* No license included

Controls

- | | |
|----------------------|-----------------------------------|
| 1 Lens connector | 6 10/100 Base-T Fast Ethernet |
| 2 Control buttons | 7 Data (RS485/422/232) |
| 3 Audio in | 8 Reset button |
| 4 Audio out | 9 BNC video output (service mode) |
| 5 Power supply input | 10 Alarm in, relay out |

Parts Included**Quantity Components**

- 1 NBN-498 Series Dinion2x Day/Night IP Camera
- 1 Spare lens connector
- 1 Safety Instructions
- 1 Quick Install Guide
- 1 Mini DVD-ROM with manuals, software and tools
- 1 Power connector
- 1 Alarm I/O connector
- 1 Data connector
- 1 C/CS mount adapter

Technical Specifications**Electrical**

Model No.	Rated Voltage	Rated Frequency
NBN-498-1xP	24 VAC ±10%	50 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
NBN-498-2xP	24 VAC ±10%	60 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
Current Consumption	550 mA 650 mA IVA (12 VDC) 550 mA 650 mA IVA (24 VAC) 200 mA 250 mA IVA (PoE 48 VDC)	

Sensor			
Type	1/3-inch CCD, WDR, dual shutter		
Active Pixels (PAL)	752 x 582		
Active Pixels (NTSC)	768 x 494		
Video			
Video compression	H.264 (ISO/IEC 14496-10); M-JPEG, JPEG		
Data rate	9.6 Kbps to 6 Mbps		
Resolution	Horizontal x vertical (PAL/NTSC ips)		
4CIF	704 x 576/480 (25/30 ips)		
CIF	352 x 288/240 (25/30 ips)		
Overall IP Delay	Min. 120 ms, Max. 240 ms		
GOP structure	I, IP		
Frame rate	1 to 50/60 (PAL/NTSC) H.264 1 to 25/30 (PAL/NTSC) M-JPEG		
Video Out			
Signal	Analog composite (NTSC or PAL), service		
Connector	BNC, 75 Ohm		
Horizontal resolution	540 TVL		
Video S/N	50 dB		
Sensitivity (3200 K, scene reflectivity 89%, F1.2)			
	Full video (100 IRE)	Usable picture (50 IRE)	Minimum Illumi- nation (30 IRE)
Color	2.4 lx (0.223 fc)	0.47 lx (0.044 fc)	0.15 lx (0.0139 fc)
Color + SensUp 10x	0.24 lx (0.0223 fc)	0.047 lx (0.00437 fc)	0.015 lx (0.00139 fc)
Monochrome	0.98 lx (0.091 fc)	0.188 lx (0.0174 fc)	0.060 lx (0.0056 fc)
Monochrome + SensUp 10x	0.098 lx (0.0091 fc)	0.019 lx (0.00176 fc)	0.0060 lx (0.000557 fc)
Day/Night	Color, Mono, Auto		
Modes	6 preset programmable modes		
Dynamic range	120 dB (20-bit image processing)		
Signal-to-Noise Ratio	> 50 dB		
Dynamic engine	2X-Dynamic, XF-Dynamic, SmartBLC+2X-Dy- namic		
SmartBLC	On (includes 2X-Dynamic) / Off		
AGC	AGC On or Off (0 - 30 dB) selectable		
White Balance	ATW (2500 to 10000K), ATWhold and man- ual		
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable		
Sensitivity up	Adjustable from Off up to 10x		
Auto Black	Automatic continuous, Off		
Dynamic Noise Reduction	Auto, On/off selectable		
Sharpness	Sharpness enhancement level selectable		
Peak White Invert	On/Off		

Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Saw- tooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock selectable
Lens Mount	CS (max lens protrusion 5 mm, 0.2 inch), C- mount compatible with supplied adapter ring
Lens Types	Manual, DC- and Video-Iris auto-detect with override DC-iris drive: max. 50 mA continuous Video-iris: 11.5 VDC \pm 0.5, max. 50 mA con- tinuous
Controls	OSD with soft-key operation (multi-lingual)
Audio	
Standard G.711	300 Hz to 3.4 kHz at 8 kHz sampling rate
Signal-to-noise ratio	> 50 dB
Input/output	
Audio	1 x mono line in, 1 x mono line out
• connector	3.5 mm stereo jack
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kOhm typical, 2.3 Vpp at 32 Ohm typical, 1.7 Vpp at 16 Ohm typical
Alarm	2 inputs
• connector	Clamp (non-isolated closing contact)
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• connector	Clamp
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA
Data port	RS-232/422/485
Software Control	
Unit Configuration	Via web browser or Configuration Manager
Flicker Control	50/60 Hz, selectable
Software update	Flash ROM, remote programmable
Network	
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, 802.1x, UPnP
Encryption	TLS 1.0, SSL, AES (optional)
Ethernet	STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE supply	IEEE 802.3af compliant
Mechanical	
Dimensions (H x W x L)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	542 g (1.195 lb) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC

Environmental

Operating Temperature*	-20°C to +50°C (-4°F to 122°F)
Operating Temperature (IVA)*	-20°C to +45°C (-4°F to 113°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

* for extended temperature range use HAC-IPCCC

Ordering Information

NBN-498-11P Dinion2X D/N IP Camera 1/3-inch Progressive scan, H.264 dual stream, 2X DSP, WDR, PAL, 50 Hz, Motion+, PoE	NBN-498-11P
NBN-498-21P Dinion2X D/N IP Camera 1/3-inch Progressive scan, H.264 dual stream, 2X DSP, WDR, NTSC, 60 Hz, Motion+, PoE	NBN-498-21P
NBN-498-12P Dinion2X D/N IP Camera 1/3-inch Progressive scan, H.264 dual stream, 2X DSP, WDR, PAL, 50 Hz, IVA prepared, PoE	NBN-498-12P
NBN-498-22P Dinion2X D/N IP Camera 1/3-inch Progressive scan, H.264 dual stream, 2X DSP, WDR, NTSC, 60 Hz, IVA prepared, PoE	NBN-498-22P

Accessories

EX12LED-3BD-8M Infrared Illuminator EX12LED IR Illuminator, 850 nm, 30 deg beam	EX12LED-3BD-8M
EX12LED-3BD-8W Infrared Illuminator EX12LED, IR Illuminator, 850 nm, 60 deg beam	EX12LED-3BD-8W
EX12LED-3BD-9M Infrared Illuminator EX12LED IR Illuminator, 940 nm, 30 deg beam	EX12LED-3BD-9M
EX12LED-3BD-9W Infrared Illuminator EX12LED, IR Illuminator, 940 nm, 60 deg beam	EX12LED-3BD-9W
LTC 3364/21 Varifocal Lens IR corrected 1/3-inch, 2.8 – 6 mm, DC-iris, CS-mount F1.4-200, 4-pin	LTC3364/21
LTC 3664/30 Varifocal Lens IR corrected 1/3-inch, 3.0 – 8 mm, DC-iris, CS-mount F1.0-360, 4-pin	LTC3664/30
LTC 3664/40 Varifocal Lens IR corrected 1/3-inch, 2.8 – 11 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3664/40
LTC 3674/20 Varifocal Lens IR corrected 1/3-inch, 7.5 – 50 mm, DC-iris, CS-mount F1.3-360, 4-pin	LTC 3674/20
LTC 3764/20 Varifocal Lens IR corrected 1/2-inch, 4 – 12 mm, DC-iris, C-mount F1.2-360, 4-pin	LTC 3764/20
LTC 3774/30 Varifocal Lens IR corrected 1/2-inch, 10 – 40 mm, DC-iris, C-mount F1.4-360, 4-pin	LTC 3774/30

Ordering Information

UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	UPA-2410-60
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
HAC-IPCCC Camera Cooling Case For use with Dinion IP cameras in combination with HSG and UHO Series housings equipped with an optional blower	HAC-IPCCC

Software Options

MVC-FIVA4-CAM IVA 4.0 VCA software license for IP camera/dome (e-license)	MVC-FIVA4-CAM
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.	MVC-FENC-AES

NWC-0455 Dinion IP Cameras



Features

- ▶ High quality digital color IP camera
- ▶ DVD-quality, 4CIF video at up to 30 IPS
- ▶ Storage efficient tri-streaming: Dual MPEG-4/H.264 and M-JPEG simultaneously
- ▶ Power over Ethernet (IEEE 802.3af compliant)
- ▶ Direct iSCSI recording
- ▶ Hybrid IP camera with analog and Ethernet outputs
- ▶ NightSense for low light situations
- ▶ Ultra-compact size
- ▶ ONVIF conformant

Dinion IP cameras are modern, hybrid systems that support legacy-direct analog output, as well as modern network delivery. They can stream video simultaneously on both channels. Supporting the award-winning Dinion digital imaging technology, they provide proven, dependable service for the most demanding security and surveillance requirements.

Functions

Unsurpassed flexibility

The Dinion IP is a true hybrid camera. Equipped with both Ethernet and BNC connections, it can simultaneously stream IP video across a local or wide area network and CVBS video via coaxial cable to support existing analog equipment. It can fit seamlessly into an existing analog system, making use of installed equipment, while providing new IP-based functionality.

There are many ways to access the camera's video: on a PC using a web browser, using Bosch's DiBos Digital Video Recorder, with VIDEOS or BVMS video management systems, or via a Bosch IP video decoder for viewing on an analog CVBS or VGA monitor. The BNC connection provides direct input to a conventional analog matrix switcher or DVR, further enhancing the Dinion IP's viewing and recording flexibility.

ONVIF

ONVIF (Open Network video Interface Forum) compliancy ensures integration with third party management systems and video network devices.

H.264 Baseline Profile Encoding

Firmware version 4.0 and higher enables the camera to use H.264 Baseline Profile to encode the video signal. This reduces the required bit rate for a given quality setting, or increases the quality while keeping the bit rate setting.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires double the performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

Efficient bandwidth and storage management

The cameras use MPEG-4/H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering the best image quality and resolution. Bosch's innovative tri-streaming feature enables Dinion IP cameras to generate two independent MPEG-4/H.264 streams and an M-JPEG stream simultaneously. This allows streaming of high-quality images for live viewing, while recording at a reduced frame rate, and streaming M-JPEG images to a remote PDA device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

The Dinion IP cameras offer unparalleled recording options. Attached to the network, they can use iSCSI devices directly, as well as Network Video Recorders (NVRs). The iSCSI RAID5 storage support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network. The cameras also offer 10 Mb internal RAM storage.

Cost effective, simple installation

Dinion IP cameras contain a built-in Power over Ethernet (PoE) complaint network adapter. Power over Ethernet transmits power from the network switch, over the Ethernet cable, directly to the camera. This makes installation easier and less expensive, because cameras can now be installed in places where AC power is not available.

The On-Screen Display (OSD) simplifies back focus adjustment and network configuration, minimizing installation and support costs. The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to maintain proper focus throughout the 24-hour cycle. Unlike other IP cameras, no network connection, PC configuration utilities, or other tools are required to set up Dinion IP cameras.

Superior image quality

With a 1/3-inch color CCD and Bosch's advanced digital signal processing, the Dinion IP provides outstanding image quality in virtually all situations. Automatically activate the NightSense feature to extend sensitivity under low-light conditions by a factor of three in monochrome operation. MPEG-4 compression technology provides DVD-quality, 4CIF video at frame rates of up to 30 images per second for NTSC, and up to 25 IPS for PAL. Bosch's advanced H.264 compression technology reduces bandwidth and storage needs by up to 30% compared to traditional MPEG-4 IP compression.

Intelligence

The Dinion IP supports increased intelligence at the edge that provides powerful tamper detection for various combined picture cases arising from: video loss, masking, hooding, defocusing, and diverted camera. Bosch also offers Intelligent Video Motion Detection (IVMD) as an additional licensable option. This provides Video Content Analysis (VCA) directly at the video input for even more advanced VCA.

Controls and indicators

- 5 control keys
- Lock slider
- Status LED

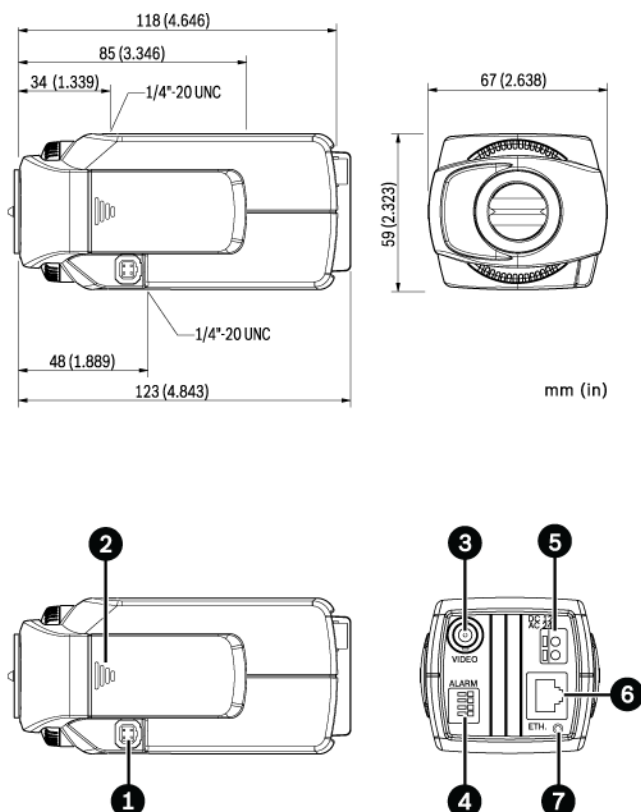
Interconnections

- BNC, video out
- 4-pole push in, alarm in, relay out
- 2-pole push in, external power
- RJ45

Certifications and Approvals

Region	Certification
Europe	CE Declaration of Conformity
USA	FCC
Safety	acc. to EN 60950-1 (CE) acc. to UL 60950-1; CAN/CSA E 60950-1
Immunity	acc. to EN 50130-4 (CE)
Emission	acc. to EN 55022 class B (CE) acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE) acc. to FCC CFR 47 Part 15, Class B acc. to AS/NZS CISPR 22 (equal to CISPR 22)
Vibration	Camera with 500 g (1.1 lb) lens according to IEC 60068-2-6

Installation/Configuration Notes



Dimensions in mm (in)

1 Lens connector	5 Power supply input
2 Control buttons	6 10/100 Base-T Fast Ethernet
3 BNC video output	7 LED (power, link, traffic)
4 Alarm in, relay out	

Parts Included

Quantity	Components
1	Dinion IP Camera
1	Spare lens connector
1	C/CS mount conversion ring
1	Quick Installation Guide
1	CD-ROM with manual

Technical Specifications

Electrical

Power

Input voltage	+11 to +36 VDC (700 mA) 12 to 28 VAC (700 mA) Power over Ethernet
Power consumption	8 VA (max)
Connector	2-pole push in

Video

Video Compression	MPEG-4/H.264; M-JPEG
GOP structure	I, IP
Data rate	9.6 Kbps to 6 Mbps (const. and variable)
Sensor	1/3 in. interline CCD

Sensor Matrix

PAL	752 x 582
NTSC	768 x 494

Resolutions and Frame Rates

	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Video Out

Signal	1 x
Signal	Analog composite (NTSC or PAL)
Connector	BNC, 75 Ohm
Video S/N	50 dB

Sensitivity

	(F1.2, 50% signal, scene reflect. 89%)
NightSense	0.26 lx (0.026 fc)
Color	0.65 lx (0.065 fc)

Minimum Illumination

NightSense	0.12 lx (0.012 fc)
Color	0.30 lx (0.03 fc)
Dynamic Range	60 dB
BLC	Center window weighting
Gain	21 dB (max)
White Balance	Auto (2500 to 9000 K)
Auto Black	On/off selectable

Electronic Shutter

PAL	1/50 to 1/125000 s (auto)
NTSC	1/60 to 1/150000 s (auto)
Alarm In	+5 VDC nominal, +40 VDC max
Relay Out	30 VAC (max) or +40 VDC, 10 VA continuous (max 0.5 A)

Software Control

Unit Configuration	Via web browser or Configuration Manager
Motion Detection	On/off
Flicker Control	50/60 Hz, selectable
Contour	Horizontal and vertical, symmetrical
Firmware	Flash ROM, remote update

Network

Protocols	Telnet, RTP, HTTP, ARP, TCP, UDP, IP, ICMP, IGMPv2/v3, SNMP, 802.1x
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Overall Unit Delay	100 ms
PoE	IEEE 802.3af compliant

Mechanical

Dimensions (H x W x D)	59 x 67 x 123 mm (2.32 x 2.64 x 4.84 in.)
Weight (without lens)	Approx. 0.45 kg (1 lb)
Mounting	¼ in. tripod on top and bottom
Color	Gray, black, and light blue
Lens Mounting	C/CS

Environmental

Operating Temperature	0 °C to +40 °C (+32 °F to +104 °F)
Storage Temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Humidity	20% to 80% relative humidity (noncondensing)

Ordering Information

NWC-0455-10P Dinion IP Camera
1/3-inch color network camera, PAL, 24
VAC/12 VDC/PoE, 50 Hz

NWC-0455-10P

NWC-0495 DinionXF Day/Night IP Cameras



Features

- ▶ **High quality Day/Night IP camera with mechanically switching IR-filter**
- ▶ **15-bit DSP technology with XF-dynamic extended dynamic range**
- ▶ **DVD-quality, 4CIF video at up to 30 IPS**
- ▶ **Storage efficient tri-streaming: Dual MPEG-4/H.264 and M-JPEG simultaneously**
- ▶ **Power over Ethernet (IEEE 802.3af compliant)**
- ▶ **Direct iSCSI recording**
- ▶ **Hybrid IP camera with analog and Ethernet outputs**
- ▶ **Ultra-compact size**
- ▶ **ONVIF conformant**

Dinion^{XF} Day/Night IP cameras are modern, hybrid systems that support legacy-direct analog output, as well as modern network delivery. They can stream video simultaneously on both channels. Equipped with 15-bit DSP with XF-dynamic, they have an extended dynamic range for sharper, more detailed images with outstanding color reproduction. Supporting the award-winning Dinion^{XF} digital imaging technology, they provide proven, dependable service for the most demanding security and surveillance requirements.

Functions

Unsurpassed flexibility

The Dinion^{XF} Day/Night IP is a true hybrid camera. Equipped with both Ethernet and BNC connections, it can simultaneously stream IP video across a local or wide area network, and CVBS video via coaxial cable to support existing analog equipment. It can fit seamlessly into an existing analog system, making use of installed equipment, while providing new IP-based functionality.

There are many ways to access the camera's video: on a PC using a web browser, using Bosch's DiBos Digital Video Recorder, with VIDOS or BVMS video management systems, or via a Bosch IP video decoder for viewing on an analog CVBS or VGA monitor. The BNC connection provides direct input to a conventional analog matrix switcher or DVR, further enhancing the camera's viewing and recording flexibility.

ONVIF

ONVIF (Open Network video Interface Forum) compliancy ensures integration with third party management systems and video network devices.

H.264 Baseline Profile Encoding

Firmware version 4.0 and higher enables the camera to use H.264 Baseline Profile to encode the video signal. This reduces the required bit rate for a given quality setting, or increases the quality while keeping the bit rate setting.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires double the performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

Efficient bandwidth and storage management

The cameras use H.264/MPEG-4 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering the best image quality and resolution. Bosch's innovative tri-streaming feature enables Dinion^{XF} Day/Night IP cameras to generate two independent H.264/MPEG-4 streams and a M-JPEG stream simultaneously. This allows streaming of high-quality images for live viewing, while recording at a reduced frame rate, and streaming M-JPEG images to a remote PDA device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

The Dinion^{XF} Day/Night IP cameras offer unparalleled recording options. Attached to the network, they can use iSCSI devices directly, as well as Network Video Recorders (NVRs). The iSCSI RAID5 storage support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network. The cameras also offer 10 Mb internal RAM storage.

Cost effective, simple installation

Dinion^{XF} IP cameras contain a built-in Power over Ethernet (PoE) complaint network adapter. Power over Ethernet transmits power from the network switch, over the Ethernet cable, directly to the camera. This makes installation easier and less expensive, because cameras can now be installed in places where AC power is not available.

The on-screen display (OSD) simplifies back focus adjustment and network configuration, minimizing installation and support costs. The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to maintain proper focus throughout the 24-hour cycle. Unlike other IP cameras, no network connection, PC configuration utilities, or other tools are required to set up Dinion^{XF} Day/Night IP cameras.

Superior image quality

With a 1/3-inch CCD and Bosch's advanced digital signal processing, the Dinion^{XF} Day/Night IP provides outstanding image quality in virtually all situations. The highly accurate 15-bit digital signal is automatically processed to reveal every detail of the image in both the high and low-light areas of the scene simultaneously. MPEG-4 compression technology provides DVD-quality, 4CIF video at frame rates of up to 30 images per second for NTSC, and up to 25 IPS for PAL. Bosch's advanced H. 264 compression technology reduces bandwidth and storage needs by up to 30% compared to traditional MPEG-4 IP compression.

In night mode, the NWC-0495 enhances low light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera can switch from color to monochrome mode automatically by sensing the illumination level, manually via the alarm input, or remotely via a web browser. An internal, through-the-lens IR detector enhances monochrome mode stability by preventing the camera from returning to color mode when IR-illumination is dominant.

Intelligence

The Dinion^{XF} Day/Night IP supports increased intelligence at the edge that provides powerful tamper detection for various combined picture cases arising from: video loss, masking, hooding, defocusing, and diverted camera. Bosch also offers Intelligent Video Motion Detection (IVMD) as an additional licensable option. This provides Video Content Analysis (VCA) directly at the video input for even more advanced VCA.

Controls and indicators

- 5 control keys
- Lock slider
- Status LED

Interconnections

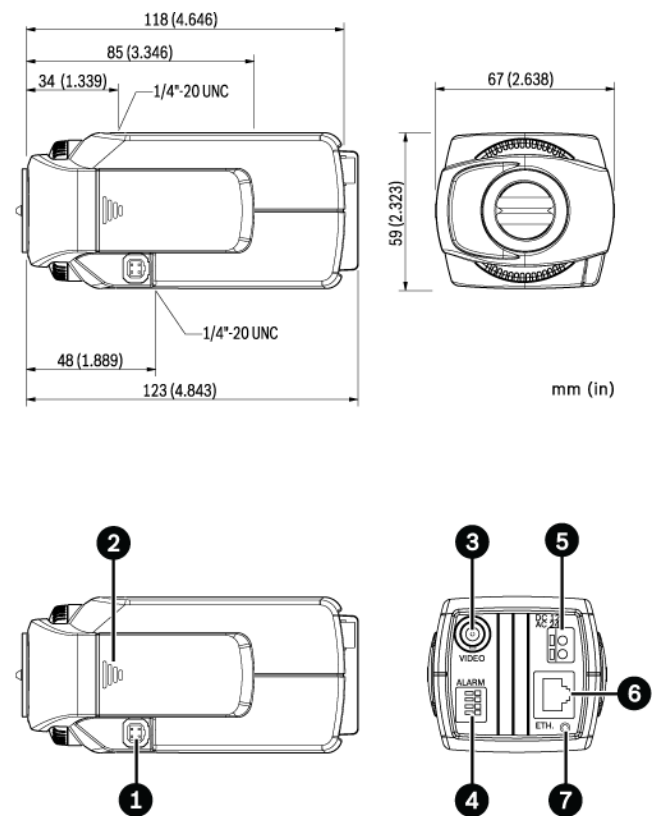
- BNC, video out
- 4-pole push in, alarm in, relay out
- 2-pole push in, external power
- RJ45

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	

Safety	acc. to EN 60950-1 (CE)
	acc. to UL 60950-1; CAN/CSA E 60950-1
Immunity	acc. to EN 50130-4 (CE)
Emission	acc. to EN 55022 class B (CE)
	acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE)
	acc. to FCC CFR 47 Part 15, Class B
Vibration	acc. to AS/NZS CISPR 22 (equal to CISPR 22)
	Camera with 500 g (1.1 lb) lens according to IE C60068-2-6

Installation/Configuration Notes



Dimensions in mm (in)

1 Lens connector	5 Power supply input
2 Control buttons	6 10/100 Base-T Fast Ethernet
3 BNC video output	7 LED (power, link, traffic)
4 Alarm in, relay out	

Parts Included

Quantity	Components
1	Dinion ^{XF} Day/Night IP Camera
1	Spare lens connector
1	C/CS mount conversion ring
1	Quick Installation Guide
1	CD-ROM with manual

Technical Specifications

Electrical

Power

Input Voltage +11 to +36 VDC (700 mA)

12 to 28 VAC (700 mA)

Power over Ethernet

Power Consumption 8 VA (max)

Connector 2-pole push in

Video

Video Compression MPEG-4/H.264; M-JPEG

GOP Structure I, IP

Data Rate 9.6 Kbps to 6 Mbps (const. and variable)

Sensor 1/3 in. interline CCD

Sensor Matrix

PAL 752x582

NTSC 768x494

Resolutions and Frame Rates

4CIF: 25/30 IPS 704 x 576 704 x 480

2CIF: 25/30 IPS 704 x 288 704 x 240

half D1: 25/30 IPS 352 x 576 352 x 480

CIF: 25/30 IPS 352 x 288 352 x 240

QCIF: 25/30 IPS 176 x 144 176 x 120

Video out 1 x

Signal Analog composite (NTSC or PAL)

Connector BNC, 75 Ohm

Video S/N 50 dB

Sensitivity (F1.2, 50% signal, scene reflect. 89%)

Night Mode 0.08 lx (0.008 fc)

Color 0.59 lx (0.059 fc)

Minimum Illumination

Night Mode 0.0038 lx (0.00038 fc)

Color 0.024 lx (0.0024 fc)

BLC Off/area/level selectable

Gain Auto, selectable to 28 dB (max)

White Balance ATW (2500 to 10000 K)/AWB hold/man. WB selectable

Auto Black On/off selectable

Sensitivity Up (SensUp) Off/auto continuous up to 10 x

Dynamic Range Up to 32 x

Dynamic Noise Reduction Off/auto selectable

Contour Sharpness enhancement, level selectable

Electronic shutter **Fixed, flickerless, default**

PAL (auto) 1/50 s to 1/500000 s (auto)

NTSC (auto) 1/60 s to 1/500000 s (auto)

Alarm In +5 VDC nominal, +40 VDC max.

Relay Out 30 VAC (max.) or +40 VDC,
10 VA continuous (max. 0.5 A)

Software control

Unit Configuration Via web browser or Configuration Manager

Motion Detection On/off

Flicker Control 50/60 Hz, selectable

Aperture correction Horizontal and vertical, symmetrical

Firmware Flash ROM, remote update

Network

Protocols Telnet, RTP, HTTP, ARP, TCP, UDP, IP, ICMP, IGMPv2/v3, SNMP, 802.1x

Ethernet 10/100 Base-T, auto-sensing, half/full duplex, RJ45

Overall Unit Delay 100 ms (MPEG-4)

PoE IEEE 802.3af compliant

Mechanical

Dimensions (H x W x D)* 59 x 67 x 123 mm
(2.32 x 2.64 x 4.84 in.)

Weight (without lens) Approx. 0.45 kg (1 lb)

Mounting ½ in. tripod on top and bottom

Color Gray, black, and wine red

Lens Mounting C/CS, 5 mm (0.2 in) max. lens protrusion

* Without lens

Environmental

Operating Temperature 0 °C to +40 °C (+32 °F to +104 °F)

Storage Temperature -25 °C to +70 °C (-13 °F to +158 °F)

Humidity 20% to 80% relative humidity (noncondensing)

Ordering Information

NWC-0495-10P DinionXF Day/Night IP Camera **NWC-0495-10P**

1/3-inch, high performance, 24 VAC / 12 VDC / PoE, 50 Hz

NWC-0495-20P DinionXF Day/Night IP Camera **NWC-0495-20P**

1/3-inch, high performance, 24 VAC / 12 VDC / PoE, 60 Hz

NWC-0700 and 0800 Mega pixel IP Cameras



Features

- ▶ 2.0 or 3.1 megapixel resolution versions
- ▶ Selectable resolution and frame rate
- ▶ High quality MJPEG video compression
- ▶ Replaces several fixed-mount analog cameras
- ▶ Integrates with DiBos Hybrid Digital Video Recorder (DVR)
- ▶ Power over Ethernet (PoE) or 12 VCD external power source

The NWC-0700 and the NWC-0800 Megapixel IP Camera delivers data to, and gets power from, the Ethernet network. The megapixel resolution, combined with high quality image processing, let these cameras operate in extreme lighting conditions from more than 100,000 lux to as low as one lux. Both the frame rate and resolution are adjustable, providing precise fine-tuning of the image quality to accommodate the bandwidth and storage requirements. Adjustable MJPEG compression further reduces the impact on transmission speed and storage. View full resolution images, live or during playback, with the Bosch DiBos 8 Hybrid DVR. Record and monitor as many as four user-defined zoomed areas per camera for closer examination.

Functions

Configuration

Configure network parameters and install the camera using a simple user interface with easy-to-understand software. The camera can be equipped with a wide variety of C/CS mount lenses and supports auto-iris lenses.

Video encoding

The camera produces high-quality streaming video with exceptionally sharp resolution. Advanced MJPEG compression allows the camera to deliver 1600 x 1200 video resolution at up to 24 images per second over its Ethernet connection.

Network and power

Either camera transfers data at up to 45 Mbit/s over an Ethernet connection and draws power from the network connection (PoE with full 802.3af compliancy) or from a 12 VDC external power source. PoE allows greater placement flexibility and more cost-effective installation, since cameras do not require a local power source. Connecting an uninterruptible power source (UPS) to the PoE switch allows continuous operation and surveillance, even during power failures.

Operation

These innovative cameras provide high quality image processing that produce sharp images with high detail and outstanding color accuracy. Selectable resolutions and frame rates, combined with adjustable MJPEG compression, allow the best image quality for the given bandwidth or storage restrictions.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity
Safety	acc. to EN 60950 (CE) acc. to UL 60950-1; CAN/CSA E 60950-1	
Immunity	acc. to EN 55024 IT equipment (CE)	
Emission	acc. to EN 55022 class A (CE) acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE) acc. to FCC CFR 47 Part 15, Class A	

Parts Included

Qty	Components
1	NWC-0700 Megapixel IP Camera* or NWC-0800 Megapixel IP Camera*
1	CS to C mount adapter
1	Quick installation guide
1	CD-ROM with manual and Setup/Viewer software
1	1/16 in. hex key for back focus adjustment

* Lens not included

Technical Specifications

Electrical

Power Supply	PoE or external
Rated Voltage (ext.)	12 VDC
Voltage Range (ext.)	9 to 12 VDC
Power Consumption	0.5 A
Connector (ext.)	5 mm, center contact positive
PoE	IEEE 802.3af compliant RJ45 connector

Video Compression	MJPEG	
Sensor	½ in. CMOS, color (both models)	
Sensor Matrix		
<div><div></div><div>NWC-0700</div></div>	1600 x 1200	
<div><div></div><div>NWC-0800</div></div>	2048 x 1536	
Resolution	IPS (NWC-0700)	IPS (NWC-0800)
<div><div></div><div>1280 x 1024</div></div>	32	32
<div><div></div><div>1600 x 1200</div></div>	24	24
<div><div></div><div>1920 x 1080</div></div>	NA	22
<div><div></div><div>1920 x 1200</div></div>	NA	20
<div><div></div><div>2040 x 1530</div></div>	NA	15
Video S/N		
Sensitivity		
<div><div></div><div>NWC-0700</div></div>	0.5 lx at F1.4 (lowlight exposure)	
<div><div></div><div>NWC-0800</div></div>	1.0 lx at F1.4 (lowlight exposure)	
Exposure		
<div><div></div><div>High Speed</div></div>	1 to 10 ms, adjustable	
<div><div></div><div>Speed</div></div>	10 ms (80 ms lowlight)	
<div><div></div><div>Balanced</div></div>	20 ms (80 ms lowlight)	
<div><div></div><div>Quality</div></div>	40 ms (200 ms lowlight)	
<div><div></div><div>Moonlight</div></div>	Up to 500 ms lowlight	
Dynamic Range	60 dB	
BLC	Auto	
Gain	Auto, fixed level selectable	
White Balance	Auto, multimatrix	
Software Control		
Unit Configuration	Via web browser and proprietary software	
MJPEG Quality	Selectable, 21 levels	
Min. Window Size	32 x 32 pixels	
Motion Blurring Correction	On/off	
Flicker Control	50/60 Hz, selectable	
Firmware	Flash ROM, remote update	
Network		
Protocols	HTTP, ARP, UDP, IP, ICMP, TFTP	
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45	
Overall Unit Delay	2 frames, 45 ms per frame	
Mechanical		
Dimensions (H x W x D)*	63.5 x 76 x 125 mm (2.5 x 3 x 4.9 in.)	
Weight*	Approx. 0.45 kg (1 lb)	
Mounting	¼ in. tripod on top and bottom	
Color	Silver and black	
Lens mounting	CS (C-mount with adaptor)	
* Without lens		
Environmental		
Operating Temperature	0 °C to +40 °C (+32 °F to +104 °F)	
Storage Temperature	-20 °C to +60 °C (-4 °F to +140 °F)	
Humidity	<90% relative humidity (non-condensing)	

Compatibility table for camera / lens / enclosure

Lens Type	Enclosure Models	
	UHO-HBGS-10	UHI-SBG-0
VLM-0814-MP, 8 mm F1.4, Manual iris	+	+
VLM-1214-MP, 12 mm F1.4, Manual iris	+	+
VLM-1614-MP, 16 mm F1.4, Manual iris	+	+
VLM-2514-MP, 25 mm F1.4, Manual iris	+	+
VLM-3V1228-MP, 12-36 mm F2.8, Manual iris	+	+
VLM-2V0414-MP, 4-8 mm F1.4, Manual iris	+	+
VLG-2V0414-MP, 4-8 mm F1.4, DC iris	+	+

Legend

- + Compatible
- Not compatible.

Ordering Information

NWC-0700 Megapixel IP Camera **NWC-0700**
Megapixel Camera, color, 2.0 MP resolution, 12 VDC/POE

NWC-0800 Megapixel IP Camera **NWC-0800**
Megapixel Camera, color, 3.1 MP resolution, 12 VDC/POE

Accessories

VLM-2V0414-MP **VLM-2V0414-MP**
Lens 1/2-inch 4-8mm F1.4 C-mount varifocal manual iris

VLG-2V0414-MP **VLG-2V0414-MP**
Lens 1/2-inch 4-8mm F1.4 C-mount varifocal DC iris

VLM-0814-MP **VLM-0814-MP**
Lens 2/3-inch 8 mm F1.4 C-mount monofocal manual iris

VLM-1214-MP **VLM-1214-MP**
Lens 2/3-inch 12 mm F1.4 C-mount monofocal manual iris

VLM-1614-MP **VLM-1614-MP**
Lens 2/3-inch 16 mm F1.4 C-mount monofocal manual iris

VLM-2514-MP **VLM-2514-MP**
Lens 2/3-inch 25 mm F1.4 C-mount monofocal manual iris

VLM-3V1228-MP **VLM-3V1228-MP**
Lens 2/3-inch 12-36mm F2.8 C-mount varifocal manual iris

NWC-0900 Day/Night Megapixel IP Camera



Features

- ▶ **Dual sensors for advanced Day/Night functioning over a wide range of lighting conditions**
- ▶ **3.1 megapixel color, and 1.3 megapixel monochrome resolution**
- ▶ **Selectable resolution and frame rate**
- ▶ **High quality MJPEG video compression**
- ▶ **Integrates with DiBos Hybrid Digital Video Recorder (DVR)**
- ▶ **Power over Ethernet (PoE) or 12 VDC external power source**

The NWC-0900 Day/Night Megapixel IP Camera high-performance, network-controlled camera delivers data to, and can get power from, the Ethernet network. It is equipped with two 1/2-inch sensors for 24-hour surveillance, and switches automatically between color and monochrome sensors according to lighting conditions, ensuring the best possible image at any time. These innovative features combined with high quality image processing, enables it to function well in extreme lighting conditions from more than 100,000 lux, down to 0.01 lux. Both the frame rate and resolution are adjustable, providing precise fine-tuning of the image quality to accommodate bandwidth and storage requirements. Adjustable MJPEG compression further reduces the impact on transmission speed and storage. View full resolution images, live or during playback, with the Bosch DiBos 8 Hybrid digital video recorder. Record and monitor as many as four user-defined zoomed areas per camera for closer examination.

Functions

Configuration

Install the camera and network parameters using a simple user interface and easy-to-understand software. The camera may be equipped with a wide variety of C/CS mount lenses.

Video encoding

The camera produces high-quality streaming video with exceptionally sharp resolution. Advanced MJPEG compression allows the camera to deliver megapixel video resolution at up to 32 images per second over its Ethernet connection.

Network and power

The camera transfers data at up to 45 Mbit/s over an Ethernet connection. It draws power from the network connection (PoE with full 802.3af compliancy) or from a 12 VDC external power source. PoE allows greater placement flexibility and more cost-effective installation, since cameras do not require a local power source. Attaching an uninterruptible power source (UPS) on a PoE switch allows continuous operation and surveillance, even during power failures.

Operation

Dual sensor technology provides enhanced night viewing by switching to monochrome imaging when the illumination level is too low to capture colors accurately. The camera automatically senses the illumination level of its field of vision and switches lenses. High quality image processing provides sharp images with high detail and outstanding color accuracy, even in extreme lighting conditions. Selectable resolutions and frame rates, combined with adjustable MJPEG compression, allow the user to select the best image quality for the given bandwidth or storage restrictions.

Interconnections

- RJ45 100 base-T jack
- Power connector

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity
Safety	acc. to EN 60950 (CE)	
	acc. to UL 60950-1; CAN/CSA E 60950-1	
Immunity	acc. to EN 55024 IT equipment (CE)	
Emission	acc. to EN 55022 class A (CE)	
	acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE)	
	acc. to FCC CFR 47 Part 15, Class A	

Parts Included

Qty	Components
1	NWC-0900 Day/Night Megapixel IP Camera*
2	CS to C mount adapters
1	Quick installation guide
1	CD-ROM with manual and Setup/Viewer software
1	1/16 in. hex key for back focus adjustment

* Lenses not included

Technical Specifications**Electrical**

Power Supply	PoE or external
Rated Voltage (ext.)	12 VDC
Voltage Range (ext.)	9 to 12 VDC
Power Consumption	0.5 A
Connector (ext.)	5 mm, center contact positive
PoE	IEEE 802.3af compliant, RJ45 connector
Video Compression	MJPEG

Sensors

- Monochrome ½ in. CMOS
- Color ½ in. CMOS

Sensor Matrix

- Monochrome 1280 x 1024
- Color 2048 x 1536

Resolution

	IPS (monochrome)	IPS (color)
• 1280 x 1024	32	32
• 1600 x 1200	NA	24
• 1920 x 1080	NA	22
• 1920 x 1200	NA	20
• 2040 x 1530	NA	15

Video S/N**Sensitivity**

- Monochrome 0.01 lx at F1.4 (lowlight exposure)
- Color 1.0 lx at F1.4 (lowlight exposure)

Exposure

- High Speed 1 to 10 ms, adjustable
- Speed 10 ms (80 ms lowlight)
- Balanced 20 ms (80 ms lowlight)
- Quality 40 ms (200 ms lowlight)
- Moonlight Up to 500 ms lowlight

Dynamic Range 60 dB

BLC Auto

Gain Auto, fixed level selectable

White Balance Auto, multimatrix

Software control

Unit Configuration Via web browser and proprietary software

MJPEG Quality Selectable, 21 levels

Min. window Size 32 x 32 pixels

Flicker Control 50/60 Hz, selectable

Firmware Flash PROM, update via network

Network

Protocols HTTP, ARP, UDP, IP, ICMP, TFTP

Ethernet 100 Base-T, auto-sensing, half/full duplex, RJ45

Overall Unit Delay 2 frames, 45 ms per frame

Mechanical

Dimensions (H x W x D)* 63.5 x 76 x 125 mm (2.5 x 3 x 4.9 in.)

Weight* Approx. 0.45 kg (1 lb)

Mounting ¼ in. tripod on top and bottom

Color Silver and black

Lens Mounting CS-mount (C-mount with adaptor)

* Without lens

Environmental

Operating temperature 0 °C to +40 °C (+32 °F to +104 °F)

Storage temperature -20 °C to +60 °C (-4 °F to +140 °F)

Humidity <90% relative humidity (non-condensing)

Compatibility table for camera / lens / enclosure

Enclosure Models		
Lens type	UHO-HBGS-10	UHI-SBG-0
VLM-0814-MP, 8 mm F1.4, +*		–
Manual iris		
VLM-1214-MP, 12 mm F1.4, Manual iris	+	–
VLM-1614-MP, 16 mm F1.4, Manual iris	+	–
VLM-2514-MP, 25 mm F1.4, Manual iris	+	–

Legend

+ Compatible

+* Carefully align close to the window. Some shading may occur due to manufacturing tolerances.

– Not compatible.

Ordering Information**NWC-0900 Day/Night Megapixel IP Camera****NWC-0900**

Megapixel Camera, Day/Night, 1.3 MP mono and 3.1 MP color resolution, 12 VDC/POE

Accessories**VLM-0814-MP**

Lens 2/3-inch 8 mm F1.4 C-mount monofocal manual iris

VLM-0814-MP**VLM-1214-MP**

Lens 2/3-inch 12 mm F1.4 C-mount monofocal manual iris

VLM-1214-MP**VLM-1614-MP**

Lens 2/3-inch 16 mm F1.4 C-mount monofocal manual iris

VLM-1614-MP**VLM-2514-MP**

Lens 2/3-inch 25 mm F1.4 C-mount monofocal manual iris

VLM-2514-MP

NBC-255-P and NBC-225-P IP Camera 200 Series



Features

- ▶ **Complete network video surveillance system inside a compact camera**
- ▶ **Progressive scan for sharp images of moving objects**
- ▶ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**
- ▶ **ONVIF conformant**
- ▶ **Removable SD/SDHC card offers days of storage inside camera**
- ▶ **PC surveillance software supports multiple camera monitoring**
- ▶ **Two-way audio and audio alarm**
- ▶ **Power over Ethernet (IEEE 802.3af compliant)**

The Bosch NBC-255-P and NBC-225-P IP cameras are ready-to-use, complete network video surveillance systems inside a compact camera. These cameras bring Bosch's high-performance technology into the realm of small office and retail businesses by offering a cost-effective solution for a broad range of applications.

To use the camera as a stand-alone video surveillance system, simply take it out of the box and install it; it operates straight away, no additional equipment is required.

For medium-to-large-scale or growing systems, the camera easily integrates with the Bosch Divar 700 Series recorder. It uses H.264 compression technology to give clear images while reducing bandwidth and storage by up to 30%.

Functions

Best-in-class image performance

The Bosch NBC-255-P and NBC-225-P IP cameras deliver the clearest images and most accurate colors within its class. Progressive scan ensures moving objects are always sharp.

Tri-streaming video

Tri-streaming allows a data stream to be encoded simultaneously according to three different, individually customized settings. Two types of streams can serve different purposes. For example, use H.264 stream for local recording and viewing, and the M-JPEG stream to provide compatibility with legacy DVRs.

Efficient recording

A removable SD/SDHC card offers edge recording inside the camera. This SD card not only saves network bandwidth but also reduces the requirement for a high-capacity hard disk or DVR. When used with an SD card, the camera is a complete, self-contained surveillance system without the need for additional equipment.

The camera can also be used with an iSCSI server connected via the network to store long-term recordings.

16-channel PC surveillance software

The bundled PC surveillance software offers a user-friendly interface to support easy installation and configuration. A wizard allows the configuration of multiple cameras simultaneously using an auto detection device. Multiple cameras can be monitored in one screen and video clips on the SD card can be archived and searched in a single application.

ONVIF 1.0 compliant

The latest Open Network Video Interface Forum (ONVIF) standard ensures compatibility with other surveillance products. This will contribute to a reduction in future upgrade or migration costs.

Two-way audio and audio alarm

Two-way audio allows remote users to listen in on an area and communicate messages to visitors or intruders via an external loudspeaker (not included). Audio detection can be used to generate an alarm, if needed.

Tamper and motion detection

A wide range of configuration options is available for alarms signaling camera tampering. A built-in algorithm for detecting movement in the video can also be used for alarm signaling.

Power-over-Ethernet

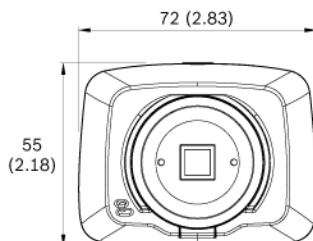
Power for the camera can be supplied via a Power-over-Ethernet (IEEE 802.3af) compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera.

Certifications and Approvals

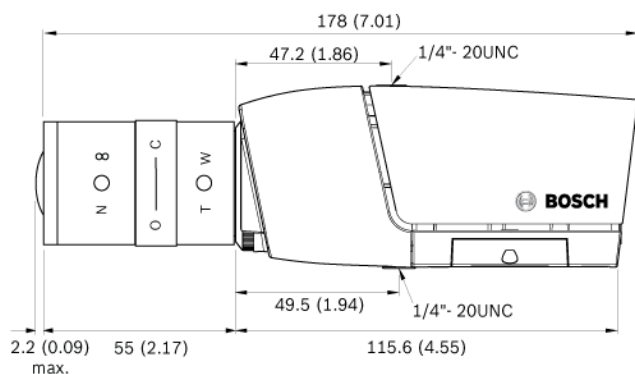
Region	Certification
Europe	CE
Safety	EU: EN 60950-1: 2006, Reference IEC 60950-1:2005
	US: UL 60950-1: 1st edition dated October 31, 2007
	Canada: CAN/CSA-C22.2 NO. 60950-1-03
EMC	EN 50130-4:1995 + A1:1998 + A2:2003
	FCC Part15 Subpart B, Class B
	EMC directive 2004/108/EC
	EN 55022 class B
	EN 61000-3-2 :2006
	EN 61000-3-3 : 1995+A1 :2001+A2 :2005
	EN 55024
	AS/NZS CISPR 22 (equal to CISPR 22)
	ICES-003 Class B
	EN 50121-4:2006
Product Certifications	CE, FCC, UL, cUL, C-tick, CB, VCCI, KCC
Power supply	CE, UL, cUL, PSE, CCC

Installation/Configuration Notes

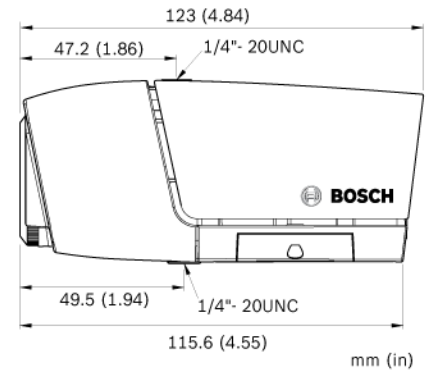
Dimensions



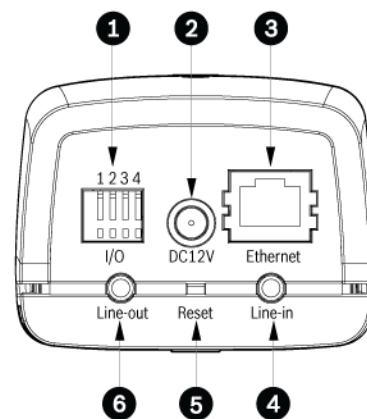
NBC-255-P



NBC-225-P



Connections



- | | |
|---|----------------|
| 1 | I/O |
| 2 | Power 12 VDC |
| 3 | Ethernet RJ45 |
| 4 | Audio Line-in |
| 5 | Reset |
| 6 | Audio Line-out |

Parts Included

Quantity	Component
1	NBC-225-P or NBC-255_P IP camera with integrated lens
1	Quick Installation Guide
1	CD ROM with BVIP Lite Suite and documentation
1	Camera mount kit
1	SD card (warranty provided by card manufacturer)
1	Universal power supply with US, EU and UK plug

Technical Specifications

Power

Input voltage	+12 VDC or Power-over-Ethernet
Power consumption	3.36 W (max)

Video

Sensor type	¼-inch CMOS
Sensor pixels	640 x 480
Sensitivity	1.0 lx
Video resolution	VGA, QVGA
Video compression	H.264 MP (Main Profile); H.264 BP+ (Baseline Profile Plus); M-JPEG
Frame rate	30/25 fps: all resolutions

Lens

Lens type	NBC-255-P: Varifocal 2.8 to 10 mm, F1.4 to close NBC-225-P: Fixed 4.9 mm, F2.8
Lens mount	NBC-255-P: CS mount NBC-225-P: Board mounted

Connection

Alarm input	+9 to 30 VDC
Relay out	24 VAC/VDC, 1 A

Audio

Audio input	Built-in microphone
	Line in jack connector
Audio output	Line out jack connector
Audio communication	Two-way, full duplex
Audio compression	G.711

Local Storage

Memory card slot	Supports up to 32 GB SD/SDHC card
Recording	Continuous recording, ring recording, alarm/events/schedule recording

Software Control

Unit configuration	Via web browser or PC surveillance software
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Network

Protocols	HTTP, HTTPS, SSL, TCP, UDP, ICMP, RTSP, RTP, RTCP, IGMPv2/v3, SMTP, FTP, DHCP client, ARP, DNS, DDNS, NTP, SNMP, UPnP
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE	IEEE 802.3af compliant

Mechanical

Dimensions with lens (H x W x D)	NBC-255-P: 55 x 72 x 178 mm (2.17 x 2.83 x 7.01 in.) NBC-225-P: 55 x 72 x 123 mm (2.18 x 2.83 x 4.84 in.)
Weight (with lens)	NBC-255-P: approx. 245 g (0.54 lb) NBC-225-P: approx. 177 g (0.39 lb)
Mounting	¼-inch mounting socket on top and bottom

Environmental

Operating temperature Camera	0 °C to +50 °C (+32 °F to +122 °F)
Operating temperature Universal Power Supply Unit	0 °C to +40 °C (+32 °F to +104 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	10% to 80% relative humidity (non condensing)

Ordering Information**Accessories**

LTC 9348/00 Series Indoor Dome Housings for cameras/lens to 216 mm (8.5 in), ceiling mount, tinted, metal backbox	LTC9348/00
UHI-SBG-0 Series Indoor Housing For camera/lens lengths up to 210 mm (8.2 in.)	UHI-SBG-0

LTC 0465 Series Dinion Day/Night Cameras



Features

- ▶ **1/3 inch format CCD sensor**
- ▶ **540 TVL resolution**
- ▶ **Mechanically switching IR filter for IR sensitivity at night**
- ▶ **Bilinx Communication for remote set-up and control**
- ▶ **Auto-detection of lens type with LensWizard**

The Dinion Day/Night Camera is a professional surveillance day/night camera that incorporates 10-bit digital signal processing. The camera is easy to install and ready to use, offering good quality picture performance.

All Dinion cameras are delivered ready to operate. Simply attach and focus the lens, then connect power. The camera automatically detects the lens type. The Lens Wizard ensures accurate back focusing for sharp pictures at all times. The camera parameters can be individually set using the control buttons on the side of the camera and On-screen Display (OSD).

Functions

Day/Night Mode

The LTC 0465 has enhanced night or low-light viewing compared to normal color cameras. The IR filter can switch from color to monochrome automatically to improve scenes when light levels have been reduced or to make use of infrared light. An internal through-the-lens IR detector enhances the monochrome mode stability as it prevents reverting to the color mode when IR illumination is dominant.

Auto Black

The automatic black level feature enhances contrast by compensating for reduced contrast (i.e. glare, fog, mist).

Bilinx Technology

Bilinx is a bi-directional communication capability embedded in the video signal of all Bosch Dinion cameras. Technicians can check status, change camera settings, and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Lens Wizard

The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening, thus ensuring proper focus maintenance throughout the 24-hour cycle. No special tools or filters are required.

Typical Applications

- Museums and art galleries
- Shopping centers
- Offices
- Schools, colleges, and universities
- Petrol/gas stations

Certifications and Approvals

Region	Certification	
Europe	CE	
USA	FCC	+ UL

Electro Magnetic Compatibility

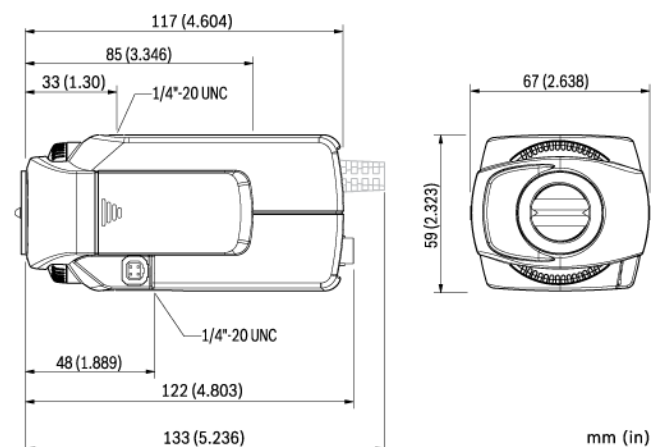
Emission	EN55022 class B, FCC class B part 15
Immunity	EN50130-4 Alarm Systems, Part 4
Vibration	Camera with 500 gr (1.1 lbs) lens according to IEC60068-2-27

Safety

LTC 0465/11 and LTC 0465/51: EN60065

LTC 0465/21 and LTC 0465/61: UL6500, cUL CAN/CSA E60065-00

Installation/Configuration Notes



Parts Included**Quantity Component**

1	LTC 0465 Series Dinion Day\Night Camera
1	Spare male 4 – pin lens connector (lens not included)
1	Installation and Operation manual (multi-lingual)

Technical Specifications**Electrical**

Model No.	Rated Voltage	
LTC 0465/11	12 – 28 VAC	45 - 65 Hz
	11 – 36 VDC	
LTC 0465/21	12 – 28 VAC	45 - 65 Hz
	11 – 36 VDC	
LTC 0465/51	110 – 230 VAC	45 - 65 Hz
LTC 0465/61	110 – 230 VAC	45 - 65 Hz

Power Consumption 4 W

CCD Type 1/3-inch interline

Active Pixels

PAL Model: 752 x 582

NTSC Model 768 x 494

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
Color	2.6 lx (0.26 fc)	0.65 lx (0.065 fc)	0.30 lx (0.03 fc)
Mono	1.04 lx (0.104 fc)	0.26 lx (0.026 fc)	0.012 lx (0.0012 fc)

Horizontal Resolution 540 TVL

Day/Night Color, Mono, Auto

Dynamic range 60 db (10-bit image processing)

Signal-to-Noise Ratio > 50 dB

BLC On (center window weighted), Off

Gain 20 dB max.

White Balance ATW (2500 - 10000 K), AWB hold, Manual WB selectable

Shutter Auto (1/60 (1/50) to 1/150000), fixed, flickerless

Auto Black Automatic, Continuous, Off

Synchronization Internal, Line Lock selectable

Lens Mount CS (maximum lens protrusion 5 mm, 0.2 in), C-mount compatible with adapter ring

Lens Types Manual, DC iris and Video iris auto-detect with override
 DC-iris drive: max. 50 mA continuous
 Video-iris: 11.5 ± 0.5 VDC, max 50 mA continuous

Remote Control Bilinx coaxial communication

Camera ID 16 character editable string, position selectable

Alarm Input (TTL) +5 V nominal, +40 VDC max

Active Pixels

Alarm Output	Bilinx or monochrome
Alarm Output Relay	Max. 30 VAC or +40 VDC, Max 0,5 A continuous, 10 VA
Video Output	1 Vpp, 75 Ohm

Mechanical

Dimensions (H x W x L)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 in) without lens
Weight	450 g (0.99 lbs) without lens
Color	RAL 7035 Light Grey
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC

Environmental

Operating Temperature	-20°C to +50°C (-4°F to 122°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

Ordering Information

LTC 0465/11 Dinion Day/Night Camera **LTC0465/11**
 1/3-inch, 540 TVL, PAL, DSP, 12 – 28 VAC/
 11 – 36 VDC, 50 Hz

LTC 0465/21 Dinion Day/Night Camera **LTC0465/21**
 1/3-inch, 540 TVL, NTSC, DSP, 12 –
 28 VAC/11 – 36 VDC, 60 Hz

LTC 0465/51 Dinion Day/Night Camera **LTC0465/51**
 1/3-inch, 540 TVL, PAL, DSP, 110 –
 240 VAC, 50 Hz

LTC 0465/61 Dinion Day/Night Camera **LTC0465/61**
 1/3-inch, 540 TVL, NTSC, DSP, 110 –
 230 VAC, 60 Hz

Accessories

LTC 3364/21 Varifocal Lens IR corrected **LTC3364/21**
 1/3-inch, 2.8 – 6 mm, DC-iris, CS-mount
 F1.4-200, 4-pin

LTC 3664/30 Varifocal Lens IR corrected **LTC3664/30**
 1/3-inch, 3.0 – 8 mm, DC-iris, CS-mount
 F1.0-360, 4-pin

LTC 3664/40 Varifocal Lens IR corrected **LTC3664/40**
 1/3-inch, 2.8 – 11 mm, DC-iris, CS-mount
 F1.4-360, 4-pin

LTC 3674/20 Varifocal Lens IR corrected **LTC 3674/20**
 1/3-inch, 7.5 – 50 mm, DC-iris, CS-mount
 F1.3-360, 4-pin

LTC 3764/20 Varifocal Lens IR corrected **LTC3764/20**
 1/2-inch, 4 – 12 mm, DC-iris, C-mount,
 F1.2-360, 4-pin

LTC 3774/30 Varifocal Lens IR corrected **LTC3774/30**
 1/2-inch, 10 – 40 mm, DC-iris, C-mount,
 F1.4-360, 4-pin

EX12LED-3BD-8M Infrared Illuminator **EX12LED-3BD-8M**
 EX12LED IR Illuminator, 850 nm, 30 deg
 beam

EX12LED-3BD-8W Infrared Illuminator **EX12LED-3BD-8W**
 EX12LED, IR Illuminator, 850 nm, 60 deg
 beam

Ordering Information**EX12LED-3BD-9M Infrared Illuminator**

EX12LED IR Illuminator, 940 nm, 30 deg beam

EX12LED-3BD-9M**EX12LED-3BD-9W Infrared Illuminator**

EX12LED, IR Illuminator, 940 nm, 60 deg beam

EX12LED-3BD-9W**TC8235GIT Ground Loop Isolation Transformer****TC8235GIT****UPA-2410-60 Power Supply**

120 VAC, 60 Hz, 24 VAC, 10 VA Out

UPA-2410-60**UPA-2450-60 Power Supply**

120 VAC, 60 Hz, 24 VAC, 50 VA Out

UPA-2450-60**UPA-2420-50 Power Supply**

220 VAC, 50 Hz, 24 VAC, 20 VA Out

UPA-2420-50**UPA-2450-50 Power Supply**

220 VAC, 50 Hz, 24 VAC, 50 VA Out

UPA-2450-50**VP-RS2BLNX Protocol Converter**

RS-232 / RS-485 infrastructure, Bilinx to USB adaptor for use with configuration tool for dome/cameras.

VP-RS2BLNX**VP-USB Cable**

USB to BNC adaptor

VP-USB**Software Options****VP-CFGSFT Configuration Software**

for cameras using Bilinx, includes VP-USB Adaptor

VP-CFGSFT

LTC 0498 Series Dinion2X Day/Night Camera



Features

- ▶ **20-bit Image Processing Technology**
- ▶ **CCD sensor with Wide Dynamic Range**
- ▶ **Dynamic engine with Smart BLC**
- ▶ **Detail enhancement**
- ▶ **True Day/Night performance with switchable filter**

The LTC 0498 Dinion2X Day/Night camera is a high-performance, smart, surveillance camera. It uses a 1/3-inch, wide dynamic range CCD sensor and incorporates advanced (20-bit) digital signal processing for outstanding picture performance.

The 20-bit image processing enhances sensitivity; the 2X-Dynamic extends the dynamic range. This unique combination provides a sharper, more detailed image with outstanding accuracy in color reproduction even under harsh lighting conditions.

The Dinion2X camera is easy to install and ready to use, and offers the best solution for demanding scene conditions. The day/night feature ensures the highest image quality possible at any time. Depending on the available light the camera will automatically switch from color to monochrome.

All Dinion cameras are supplied ready to operate. Simply attach the lens, connect video and then power. Six distinct pre-programmed operational modes are stored in the camera. Recall the mode that suits your application for optimized performance.

The camera automatically detects the lens type. The lens wizard ensures accurate back-focusing for perfectly sharp pictures at all times. For especially challenging situations where fine tuning or special settings are required, the camera parameters can be individually set using the control buttons on the side of the camera and an On-screen Display (OSD).

Functions

Detail in Extreme Lighting

In harsh lighting, the difference between the brightest and the darkest parts of a scene can be extreme. To produce a clear picture in these conditions, the CCD sensor in the Dinion2X generates two images; one long exposure to resolve details in the scene's darkest areas, and one short exposure to resolve details in the scene's brightest areas. The Digital Signal Processor (DSP) of the Dinion2X combines these dual shutter images, mixing pixels from each exposure to produce the most detailed image possible.

20-bit Image Processing

The highly accurate digital signal processing optimally captures the detail in both bright highlights and deep shadows simultaneously. By combining 20-bit image processing and wide dynamic range, the Dinion2X maximizes the information visible in the picture even with strong backlighting.

Wide Dynamic Range

The superior wide dynamic range handling for all lighting conditions reveals details previously unseen.

2X-Dynamic and SmartBLC

Using 2X-Dynamic technology, pixel-by-pixel analysis provides the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or without compromising dynamic range.

Detail Enhancement

Features such as Autoblack and Sharpness further improve the details in a scene, pixel by pixel.

Day/Night Mode

The day/night mode provides enhanced night viewing by increasing the IR sensitivity. The IR filter can switch from color to monochrome automatically by either sensing the illumination level or via the alarm input. The filter can be switched manually via the alarm input, through the camera menu or via the Bilinx coaxial control interface. An internal through-the-lens IR detector enhances the monochrome mode stability, as it prevents reverting to the color mode when IR illumination is dominant. IR contrast is also measured and used to handle reflected IR light in outdoor scenes.

Privacy masking

Four different privacy zones allow specific parts of a scene to be blocked. Pre-program any part of the scene to be masked.

Default Shutter

The default shutter speed captures fast moving objects when sufficient light is available. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

Bilinx Technology

Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. Technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Lens Wizard

The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to ensure proper focus is maintained throughout the 24-hour cycle. No special tools or filters are required.

Ease of installation

Several features are available that make installation easy:

- Power and alarm connections have cable connectors which can be removed even when the camera is mounted.
- A built-in test pattern generator produces signals to test and fault-find cables.
- A multi-language On-Screen Display (OSD) increases user compatibility.

Programmable Modes

Six independent, pre-programmed operating modes support typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

High efficiency

A high efficiency power supply improves maximum operating temperature.

Video Motion Detection

The built-in video motion detector allows you to select a programmable area with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected, alarms can be displayed in the video signal, the output relay can be closed or an alarm message can be transmitted via Bilinx.

SensUp Dynamic

By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Typical applications:

- Entrance foyer or lobby with glare
- Outdoor perimeters
 - low light
 - IR light
- Traffic monitoring
 - highway
 - traffic intersections
 - emergency response coordination
- Tunnels
- Car parks (outdoor)

- Restricted access locations such as:
 - prisons
 - ports / freight terminals
 - military facilities
 - border control and homeland security
- Casino and gambling centers.

Certifications and Approvals

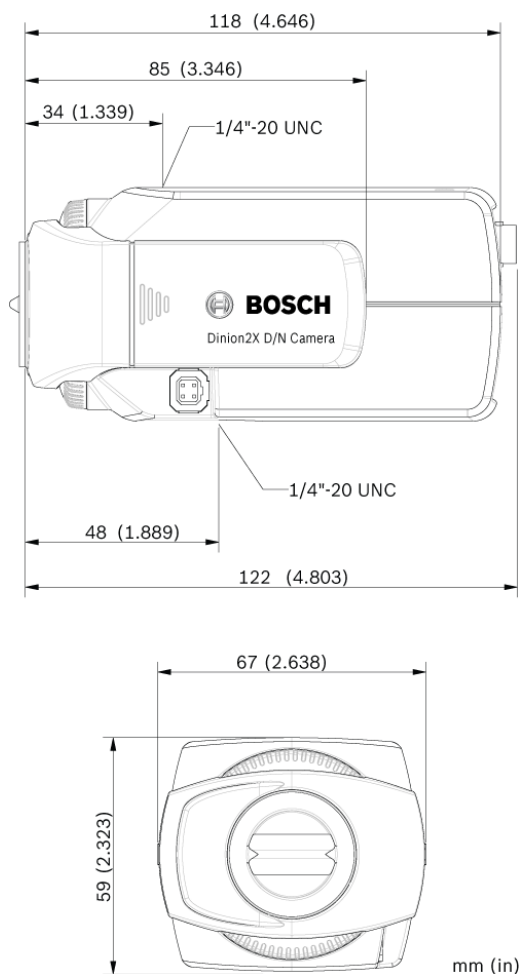
Region	Certification	
Europe	CE	Declaration of Conformity
USA	UL	
	FCC	Declaration of Conformity
Canada	CSA	

Electro Magnetic Compatibility

Emission	EN55022 class B, FCC part 15 class B, EN6100-3, EN50121-4
Immunity	EN50130-4 (CE), EN50121-4 (CE)
Vibration	Camera with 500 gr (1.1 lbs) lens according to IEC60068-2-6

Safety

LTC0498/11: UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), UL60950, CAN/CSA No. 60950
LTC0498/51: UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), EN61000-3-2 2000 +A2:2005, EN61000-3-3 1995 +A1:2001 +A2:2005
LTC0498/21 and LTC0498/61: UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), UL60950, CAN/CSA No. 60950

Installation/Configuration Notes**Dimensions****Parts Included****Quantity Component**

1	LTC 0498 Series Dinion2X Day/Night Camera
1	C/CS – mount conversion ring
1	Spare male 4 – pin lens connector
	Lens not included

Technical Specifications**Electrical**

Model No.	Rated Voltage	Rated Frequency
LTC 0498/11	24 VAC $\pm 10\%$	50 Hz
	12 VDC $\pm 10\%$	
LTC 0498/21	24 VAC $\pm 10\%$	60 Hz
	12 VDC $\pm 10\%$	
LTC 0498/51	230 VAC $\pm 10\%$	50 Hz
LTC 0498/61	120 VAC $\pm 10\%$	60 Hz

Power Consumption	350 mA (12 VDC) 250 mA (24 VAC) 70 mA (120-240 VAC)
CCD Type	1/3-inch interline, WDR dual shutter

Active Pixels

PAL Model:	752 x 582
NTSC Model	768 x 494

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
Color	2.4 lx (0.223 fc)	0.47 lx (0.044 fc)	0.15 lx (0.0139 fc)
Color + SensUp 10x	0.24 lx (0.0223 fc)	0.047 lx (0.00437 fc)	0.015 lx (0.00139 fc)
Monochrome	0.98 lx (0.091 fc)	0.188 lx (0.0174 fc)	0.060 lx (0.0056 fc)
Monochrome + SensUp 10x	0.098 lx (0.0091 fc)	0.019 lx (0.00176 fc)	0.0060 lx (0.000557 fc)

Horizontal Resolution	540 TVL
Signal-to-Noise Ratio	>50 dB
Video Output	Composite video 1 Vpp, 75 ohm
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Sensitivity up	Adjustable from Off up to 10x
Day/Night	Color, Mono, Auto
Auto Black	Automatic continuous, Off
Dynamic engine	XF-Dynamic, 2X-Dynamic, SmartBLC
Dynamic range	120 dB (20-bit image processing)
Dynamic Noise Reduction	Auto, On/off selectable
Sharpness	Sharpness enhancement level selectable
SmartBLC	On (includes 2X-Dynamic) / Off
AGC	AGC On or Off (0 - 30 dB) selectable
Peak White Invert	On/Off
White Balance	ATW, ATWhold and manual (2500 to 10000K)
Alarm Output	VMD or Bilinx
Alarm Input (TTL)	Profile switching, +3.3 V nominal, +40 VDC max.
Alarm Output Relay	30 VAC or +40 VDC, Max 0.5 A continuous, 10 VA
External Synchronization Input	75 ohm or high impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication)
Camera ID	17 character editable string, position selectable
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane

Lens Types	Manual, DC- and Video-Iris auto-detect with override DC-iris drive: max. 50 mA continuous Video-iris: 11.5 VDC \pm 0.5, max. 50 mA continuous
Lens Mount	CS (max lens protrusion 5 mm, 0.2 inch), C-mount compatible with supplied adapter ring
Modes	6 preset programmable modes
Remote Control	Bilinx coaxial bi-directional communication
Video Motion Detection	One area, fully programmable
Privacy Masking	Four independent areas, fully programmable
Controls	OSD with soft-key operation (multi-lingual)
Mechanical	
Dimensions (H x W x L)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	450 g (0.99 lbs) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC
Environmental	
Operating Temperature	-20°C to +55°C (-4°F to 131°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

Ordering Information

LTC 0498/11 Dinion 2X Day/Night Camera 1/3-inch, Advanced WDR, 540 TVL, PAL, 2X DSP, 24 VAC/12 VDC, 50 Hz	LTC 0498/11
LTC 0498/21 Dinion 2X Day/Night Camera 1/3-inch, Advanced WDR, 540 TVL, NTSC, 2X DSP, 24 VAC/12 VDC, 60 Hz	LTC 0498/21
LTC 0498/51 Dinion 2X Day/Night Camera 1/3-inch, Advanced WDR, 540 TVL, PAL, 2X DSP, 230 VAC, 50 Hz	LTC 0498/51
LTC 0498/61 Dinion 2X Day/Night Camera 1/3-inch, Advanced WDR, 540 TVL, NTSC, 2X DSP, 120 VAC, 60 Hz	LTC 0498/61

Accessories

EX12LED-3BD-8M Infrared Illuminator EX12LED IR Illuminator, 850 nm, 30 deg beam	EX12LED-3BD-8M
EX12LED-3BD-8W Infrared Illuminator EX12LED, IR Illuminator, 850 nm, 60 deg beam	EX12LED-3BD-8W
EX12LED-3BD-9M Infrared Illuminator EX12LED IR Illuminator, 940 nm, 30 deg beam	EX12LED-3BD-9M
EX12LED-3BD-9W Infrared Illuminator EX12LED, IR Illuminator, 940 nm, 60 deg beam	EX12LED-3BD-9W
LTC 3364/21 Varifocal Lens IR corrected 1/3-inch, 2.8 – 6 mm, DC-iris, CS-mount F1.4-200, 4-pin	LTC3364/21

Ordering Information

LTC 3664/30 Varifocal Lens IR corrected 1/3-inch, 3.0 – 8 mm, DC-iris, CS-mount F1.0-360, 4-pin	LTC3664/30
LTC 3664/40 Varifocal Lens IR corrected 1/3-inch, 2.8 – 11 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3664/40
LTC 3674/20 Varifocal Lens IR corrected 1/3-inch, 7.5 – 50 mm, DC-iris, CS-mount F1.3-360, 4-pin	LTC 3674/20
LTC 3764/20 Varifocal Lens IR corrected 1/2-inch, 4 – 12 mm, DC-iris, C-mount F1.2-360, 4-pin	LTC 3764/20
LTC 3774/30 Varifocal Lens IR corrected 1/2-inch, 10 – 40 mm, DC-iris, C-mount F1.4-360, 4-pin	LTC 3774/30
TC8235GIT Ground Loop Isolation Transformer	TC8235GIT
UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	UPA-2410-60
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50

Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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LTC 0630 Series Dinion2X Day/Night Camera



Features

- ▶ **Advanced Image Processing Technology**
- ▶ **Improved XF-Dynamic engine with SmartBLC**
- ▶ **Detail enhancement**
- ▶ **True Day/Night performance with switchable filter**
- ▶ **1/2-inch CCD sensor**

The LTC 0630 Dinion2X Day/Night camera is a high-performance, surveillance camera. It uses a 1/2-inch CCD sensor and incorporates advanced digital signal processing for outstanding picture performance.

The advanced image processing enhances sensitivity; the improved XF-Dynamic engine extends the dynamic range. This unique combination provides a sharper, more detailed image with outstanding accuracy in color reproduction even under harsh lighting conditions.

The Dinion2X camera is easy to install and ready to use, and offers the best solution for demanding scene conditions. The day/night feature ensures the highest image quality possible at any time. Depending on the available light the camera will automatically switch from color to monochrome.

All Dinion cameras are supplied ready to operate. Simply attach the lens, connect video and then power. Six distinct pre-programmed operational modes are stored in the camera. Recall the mode that suits your application for optimized performance.

The camera automatically detects the lens type. The lens wizard ensures accurate back-focusing for perfectly sharp pictures at all times. For especially challenging situations where fine tuning or special settings are required, the camera parameters can be individually set using the control buttons on the side of the camera and an On-screen Display (OSD).

Functions

XF-Dynamic and Image Processing

Improved XF-Dynamic technology and highly accurate digital signal processing optimally captures the detail in both bright highlights and deep shadows simultaneously. The Dinion2X maximizes the information visible in the picture even with strong backlighting.

SmartBLC

Turn on SmartBLC to automatically compensate the image without the need for complicated set-up.

Detail Enhancement

Features such as Autoblack and Sharpness further improve the details in a scene, pixel by pixel.

Day/Night Mode

The day/night mode provides enhanced night viewing by increasing the IR sensitivity. The IR filter can switch from color to monochrome automatically by either sensing the illumination level or via the alarm input. The filter can be switched manually via the alarm input, through the camera menu or via the Bilinx coaxial control interface. An internal through-the-lens IR detector enhances the monochrome mode stability, as it prevents reverting to the color mode when IR illumination is dominant. IR contrast is also measured and used to handle reflected IR light in outdoor scenes.

Privacy masking

Four different privacy zones allow specific parts of a scene to be blocked. Pre-program any part of the scene to be masked.

Default Shutter

The default shutter speed captures fast moving objects when sufficient light is available. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

Bilinx Technology

Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. Technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Lens Wizard

The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to ensure proper focus is maintained throughout the 24-hour cycle. No special tools or filters are required.

Ease of installation

Several features are available that make installation easy:

- Power and alarm connections have cable connectors which can be removed even when the camera is mounted.

- A built-in test pattern generator produces signals to test and fault-find cables.
- A multi-language On-Screen Display (OSD) increases user compatibility.

Programmable Modes

Six independent, pre-programmed operating modes support typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

High efficiency

A high efficiency power supply improves maximum operating temperature.

Video Motion Detection

The built-in video motion detector allows you to select a programmable area with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected, alarms can be displayed in the video signal, the output relay can be closed or an alarm message can be transmitted via Bilinx.

SensUp Dynamic

By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Typical applications:

- Outdoor perimeters
 - low light
 - IR light
- Traffic monitoring
 - highway
 - traffic intersections
 - emergency response coordination
- Tunnels
- Car parks (outdoor)
- Restricted access locations such as:
 - prisons
 - ports / freight terminals
 - military facilities
 - border control and homeland security
- Casino and gambling centers.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	UL	
	FCC	Declaration of Conformity
Canada	CSA	

Electro Magnetic Compatibility

Emission	EN55022 class B, FCC part 15 class B, EN6100-3, EN50121-4
Immunity	EN50130-4 (CE), EN50121-4 (CE)
Vibration	Camera with 500 g (1.1 lbs) lens according to IEC60068-2-6

Safety

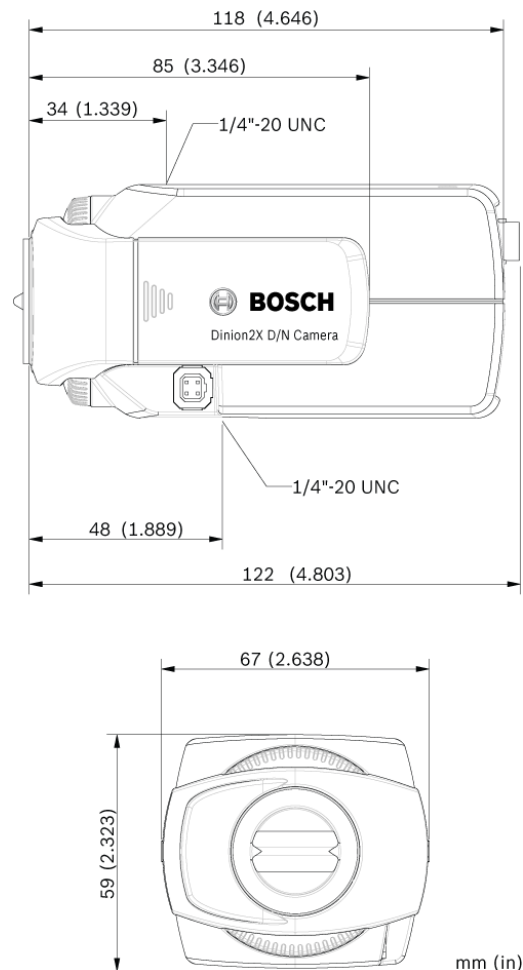
LTC0630/11: UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), UL60950, CAN/CSA No. 60950

LTC0630/51: UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), EN61000-3-2 2000 +A2:2005, EN61000-3-3 1995 +A1:2001 +A2:2005

LTC0630/21 and LTC0630/61: UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), UL60950, CAN/CSA No. 60950

Installation/Configuration Notes

Dimensions



Parts Included**Quantity Component**

1	LTC 0630 Series Dinion2X Day\Night Camera
1	C/CS – mount conversion ring
1	Spare male 4 – pin lens connector
	Lens not included

Technical Specifications**Electrical**

Model No.	Rated Voltage	Rated Frequency
LTC 0630/11	24 VAC $\pm 10\%$	50 Hz
	12 VDC $\pm 10\%$	
LTC 0630/21	24 VAC $\pm 10\%$	60 Hz
	12 VDC $\pm 10\%$	
LTC 0630/51	230 VAC $\pm 10\%$	50 Hz
LTC 0630/61	120 VAC $\pm 10\%$	60 Hz
Power Consumption	350 mA (12 VDC) 250 mA (24 VAC) 70 mA (120-240 VAC)	
CCD Type	1/2-inch interline	

Active Pixels

PAL Model:	752 x 582
NTSC Model	768 x 494

Sensitivity (3200 K, scene reflectivity 89%, F1.2)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
Color	1.40 lx (0.13 fc)	0.31 lx (0.029 fc)	0.0991 lx (0.0097 fc)
Color + SensUp 10x	0.14 lx (0.013 fc)	0.031 lx (0.0029 fc)	0.00991 lx (0.0009 fc)
Monochrome	0.57 lx (0.053 fc)	0.121 lx (0.0112 fc)	0.0391 lx (0.0036 fc)
Monochrome + SensUp 10x	0.057 lx (0.0053 fc)	0.0121 lx (0.00112 fc)	0.00391 lx (0.00036 fc)

Horizontal Resolution	540 TVL
Signal-to-Noise Ratio	>50 dB
Video Output	Composite video 1 Vpp, 75 ohm
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Sensitivity up	Adjustable from Off up to 10x
Day/Night	Color, Mono, Auto
Auto Black	Automatic continuous, Off
Dynamic engine	XF-Dynamic, SmartBLC
Dynamic range	96 dB (16-bit image processing)
Dynamic Noise Reduction	Auto, On/off selectable
Sharpness	Sharpness enhancement level selectable

SmartBLC	On/Off
AGC	AGC On or Off (0 – 30 dB) selectable
Peak White Invert	On/Off
White Balance	ATW, ATWhold and manual (2500 to 10000K)
Alarm Output	VMD or Bilinx
Alarm Input (TTL)	Profile switching, +3.3 V nominal, +40 VDC max.
Alarm Output Relay	30 VAC or +40 VDC, Max 0.5 A continuous, 10 VA
External Synchronization Input	75 ohm or high impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication)
Camera ID	17 character editable string, position selectable
Test Pattern Generator	Color bars 100%, Greyscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Lens Types	Manual, DC- and Video-Iris auto-detect with override DC-iris drive: max. 50 mA continuous Video-iris: 11.5 VDC ± 0.5 , max. 50 mA continuous
Lens Mount	CS (max lens protrusion 5 mm, 0.2 inch), C-mount compatible with supplied adapter ring
Modes	6 preset programmable modes
Remote Control	Bilinx coaxial bi-directional communication
Video Motion Detection	One area, fully programmable
Privacy Masking	Four independent areas, fully programmable
Controls	OSD with soft-key operation (multi-lingual)

Mechanical

Dimensions (H x W x L)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	450 g (0.99 lbs) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC

Environmental

Operating Temperature	-20°C to +55°C (-4°F to 131°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

Ordering Information

LTC 0630/11 Dinion 2X Day/Night Camera **LTC 0630/11**
 1/2-inch, 540 TVL, PAL, 2X DSP, 24 VAC/
 12 VDC, 50 Hz

LTC 0630/21 Dinion 2X Day/Night Camera **LTC 0630/21**
 1/2-inch, 540 TVL, NTSC, 2X DSP, 24 VAC/
 12 VDC, 60 Hz

LTC 0630/51 Dinion 2X Day/Night Camera **LTC 0630/51**
 1/2-inch, 540 TVL, PAL, 2X DSP, 230 VAC,
 50 Hz

LTC 0630/61 Dinion 2X Day/Night Camera **LTC 0630/61**
 1/2-inch, 540 TVL, NTSC, 2X DSP,
 120 VAC, 60 Hz

Accessories

EX12LED-3BD-8M Infrared Illuminator **EX12LED-3BD-8M**
 EX12LED IR Illuminator, 850 nm, 30 deg
 beam

EX12LED-3BD-8W Infrared Illuminator **EX12LED-3BD-8W**
 EX12LED, IR Illuminator, 850 nm, 60 deg
 beam

EX12LED-3BD-9M Infrared Illuminator **EX12LED-3BD-9M**
 EX12LED IR Illuminator, 940 nm, 30 deg
 beam

EX12LED-3BD-9W Infrared Illuminator **EX12LED-3BD-9W**
 EX12LED, IR Illuminator, 940 nm, 60 deg
 beam

LTC 3764/20 Varifocal Lens IR corrected **LTC 3764/20**
 1/2-inch, 4 – 12 mm, DC-iris, C-mount
 F1.2-360, 4-pin

LTC 3774/30 Varifocal Lens IR corrected **LTC 3774/30**
 1/2-inch, 10 – 40 mm, DC-iris, C-mount
 F1.4-360, 4-pin

TC8235GIT Ground Loop Isolation **TC8235GIT**
Transformer

UPA-2410-60 Power Supply **UPA-2410-60**
 120 VAC, 60 Hz, 24 VAC, 10 VA Out

UPA-2450-60 Power Supply **UPA-2450-60**
 120 VAC, 60 Hz, 24 VAC, 50 VA Out

UPA-2420-50 Power Supply **UPA-2420-50**
 220 VAC, 50 Hz, 24 VAC, 20 VA Out

UPA-2450-50 Power Supply **UPA-2450-50**
 220 VAC, 50 Hz, 24 VAC, 50 VA Out

Software Options

VP-CFGSFT Configuration Software **VP-CFGSFT**
 for cameras using Bilinx, includes VP-USB
 Adaptor

LTC 0485 Series DinionXF Color Cameras



Features

- ▶ **15-bit DSP technology**
- ▶ **XF-dynamic**
- ▶ **Bilinx communication**
- ▶ **NightSense**
- ▶ **Default shutter**
- ▶ **Lens wizard**
- ▶ **Auto black**
- ▶ **Video motion detection**
- ▶ **540 TVL resolution**

The LTC 0485 Series of High Performance 1/3-inch Digital CCD Color Cameras create the best possible image, even under the most difficult light and scene conditions. Based on unique 15-bit digital video processing technology and employing XF-Dynamic, these cameras provide excellent sensitivity with extended dynamic range. By employing the best 1/3-inch CCD available, advanced front end processing, combined with the outstanding Dinion DSP, the cameras achieve an astonishing sensitivity, providing better color images in low light situations and sharper daytime images. Intelligent White balance algorithms, supported by a White Balance Hold function and even full manual white balance, ensure the most accurate color reproduction possible. All Dinion cameras are supplied ready to operate. Simply attach and focus the lens, and connect power to provide optimal pictures under virtually all scene conditions. No tools are required for back focus and power connection. For extra challenging situations where fine tuning or special settings are required, the camera parameters can be individually set using the control buttons on the side of the camera and On-screen

Display (OSD). Also, to aid installation, the camera automatically detects the lens type, and using the Lens Wizard ensures accurate (back) focusing for perfectly sharp pictures at all times.

Functions

XF-Dynamic

Extended dynamic range is brought to a new level on the LTC 0485 Series Camera by XF-Dynamic technology. XF-Dynamic automatically processes the highly accurate 15-bit digital signal to optimally capture the detail in both the highlight and lowlight areas of the scene simultaneously, to maximize the information visible in the picture.

Bilinx Technology

The LTC 0485 series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Video Motion Detection

The built-in video motion detector allows you to select up to four fully programmable areas with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected alarms may be displayed in the video signal, the output relay can be closed in addition to alarm message transmission on Bilinx.

Auto Black

The automatic black level feature, enhances contrast by removing veiling glare from the picture or when contrast is reduced by fog or mist.

Default Shutter

When viewing moving objects a fast shutter speed is required. When using a fast shutter speed the lens opening or gain control needs to be increased to maintain the video signal. The camera sensitivity is limited by the fast shutter speed. The default shutter setting of the LTC 0485 offers the best of all worlds, fast shutter speed as long as there is sufficient light, however as the light level falls, when other adjustments have been exhausted, the shutter reverts to the standard setting maintaining the cameras excellent sensitivity.

Back Light Compensation (BLC)

Offering a fully programmable BLC area of interest, and a variable BLC level, the camera can be easily set up for even the most challenging entrance applications.

Lens Wizard

The LTC 0485 Series automatically detects the type of lens installed. The Lens Wizard will focus the lens at the maximum lens opening, to ensure that focus is maintained throughout the entire 24-hour day/night cycle. No special tools or filters are required.

Programmable Modes

The camera supports 3 independent operating modes. The 3 modes are preprogrammed for typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

NightSense

The LTC 0485 cameras feature NightSense. With NightSense the sensitivity is increased by 9 dB in monochrome mode. NightSense can be automatically activated in low light situations, or remotely using Bilinx.

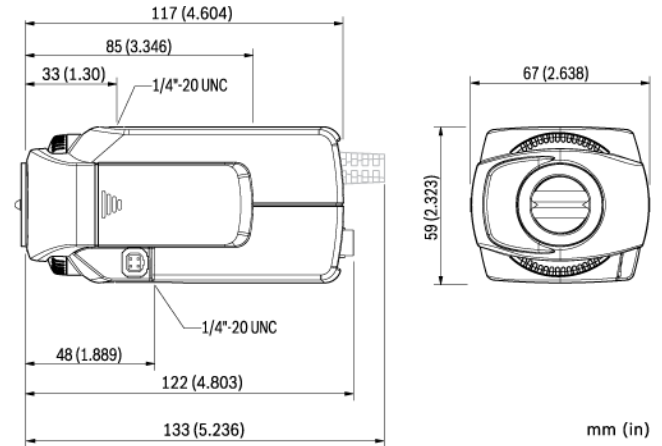
SensUp

By increasing the integration time on the CCD up to 10 times, the effective sensitivity is dramatically enhanced, especially useful where there is no artificial lighting and you rely on the moon, stars and scattered radiation.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity
Electro Magnetic Compatibility		
Emission	EN55022 class B, FCC class B part 15	
Immunity	EN50130-4 Alarm Systems, Part 4	
Vibration	Camera with .5 kg (1.1 lbs) lens according to IEC60068-2-27	
Safety		
LTC 0485/11 and LTC 0485/51: EN60065		
LTC 0485/21 and LTC 0485/61: UL6500, cUL CAN/CSA E60065-00		

Installation/Configuration Notes



Dimensions in mm (inches)

Parts Included

Quantity	Components
1	LTC 0485 Series Dinion ^{XF} Color Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Voltage Range	
LTC 0485/11	12–28 VAC	45–65 Hz
	11–36 VDC	
LTC 0485/21	12–28 VAC	45–65 Hz
	11–36 VDC	
LTC 0485/51	85–265 VAC	45–65 Hz
LTC 0485/61	85–265 VAC	45–65 Hz
Power Consumption	4 W	
Imager	Interline transfer CCD, 1/3-inch format	

Active Pixels

PAL	752 H x 582 V
NTSC	768 H x 492 V

Sensitivity (3200 k)

Sensitivity (Full Video) ¹⁾	2.4 lux (0.24 fc)
Sensitivity 50 IRE ¹⁾	0.59 lux / 0.24 lux (NightSense) (0.059 fc / 0.024 fc (NightSense))
Minimum Illumination ¹⁾	0.24 lux / 0.10 lux (NightSense) (0.024 fc / 0.01 fc (NightSense))
Minimum Illumination with Sens Up	0.024 lux / 0.010 lux (NightSense) (0.0024 fc / 0.0010 fc (NightSense))
Horizontal Resolution	540 TVL

**Sensitivity
(3200 k)**

Signal-to-Noise-Ratio	> 50 dB
Video Output	1 Vpp, 75 Ohm
Y/C Output	Y: 1 Vpp / C: 0.3 Vpp
Synchronization	Internal, line lock, HV-lock and genlock (Burst lock) selectable
Electronic Shutter	Auto (1/60 (1/50) to 1/500000), fixed, flickerless, default
Sensitivity up	Off, automatic continuous up to 10x
Auto Black	On, off selectable
Range	32x dynamic range enhancement
Dynamic Noise Reduction	Auto, off selectable
Contour	Sharpness enhancement level selectable
BLC	Off, area and level selectable
Gain	Auto (maximum level selectable to 28 dB) or fixed level selectable
White Balance	ATW (2500–10000 K), AWB hold, manual WB selectable
VMD	4 area, sensitivity selectable
Alarm Output	VMD or Bilinx
Alarm Input (TTL)	Profile switching, +5 V nominal, +40 VDC max.
Alarm Output Relay	Max. 30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA
External Synchronization Input	75 Ohm or High Impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with coaxial communication)
Camera ID	16 character editable string, position selectable
Lens Types	Manual, DC- and Video-iris auto-detect with override DC-iris drive: max. 50 mA continuous Video-iris: 11.5 ± 0.5 VDC, max. 50 mA continuous
Remote Control	Bi-directional coaxial communication

1) F1.2, 89% reflection, SensUp Off

Mechanical

Dimensions (H x W x L)	59 x 67 x 122 mm (2.28 x 2.6 x 4.8 in.) without lens
Weight	450 g (0.99 lbs) without lens
Tripod Mount	Bottom (isolated) and top 1/4-in. 20 UNC
Lens Mount	Cand CS
Controls	OSD with softkey operation

Environmental

Operating Temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Storage Temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Operating Humidity	20% to 93% Relative humidity
Storage Humidity	Up to 98% Relative humidity

Ordering Information

LTC 0485/11 DinionXF Color Camera 1/3-inch, high performance, 540 TVL, PAL, DSP, 12 – 28 VAC/11 – 36 VDC, 50 Hz	LTC0485/11
LTC 0485/21 DinionXF Color Camera 1/3-inch, high performance, 540 TVL, NTSC, DSP, 12 – 28 VAC/11 – 36VDC, 60 Hz	LTC0485/21
LTC 0485/51 DinionXF Color Camera 1/3-inch, high performance, 540 TVL, PAL, DSP, 85 – 268 VAC, 50 Hz	LTC0485/51
LTC 0485/61 DinionXF Color Camera 1/3-inch, high performance, 540 TVL, NTSC, DSP, 85 – 265 VAC, 60 Hz	LTC0485/61

Accessories

LTC 3364/21 Varifocal Lens IR corrected 1/3-inch, 2.8 – 6 mm, DC-iris, CS-mount F1.4-200, 4-pin	LTC3364/21
LTC 3364/31 Varifocal Lens 1/3-inch, 3.5 – 8 mm, DC-iris, CS-mount F/ 1.4-200, 4-pin	LTC3364/31
LTC 3384/21 Zoom Lens 1/3-inch, 6 – 60 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3384/21
TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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LTC 0610 Series DinionXF Color Cameras



Features

- ▶ **15-bit DSP technology**
- ▶ **XF-Dynamic**
- ▶ **Bilinx communication**
- ▶ **NightSense**
- ▶ **Default shutter**
- ▶ **Lens wizard**
- ▶ **Auto black**
- ▶ **Video motion detection**
- ▶ **540 TVL resolution**

The LTC 0610 Series of High Performance 1/2-inch Digital CCD Color Cameras create the best possible image, even under the most difficult light and scene conditions. Based on unique 15-bit digital video processing technology and employing XF-Dynamic, these cameras provide the ultimate sensitivity with extended dynamic range. By employing the best 1/2-inch CCD available, advanced front end processing, combined with the outstanding Dinion DSP, the cameras achieve an astonishing sensitivity, providing better color images in low light situations and sharper daytime images.

Intelligent White balance algorithms, supported by a White Balance Hold function and even full manual white balance, ensure the most accurate color reproduction possible. All Dinion cameras are supplied ready to operate. Simply attach and focus the lens, and connect power to provide optimal pictures under virtually all scene conditions. No tools are required for back focus and power connection.

For extra challenging situations where fine tuning or special settings are required, the camera parameters can be individually set using the control buttons on the side of the camera and On-screen Display (OSD). Also, to aid installation, the camera automatically detects the lens type, and using the Lens Wizard ensures accurate (back) focusing for perfectly sharp pictures at all times.

Functions

XF-Dynamic

Extended dynamic range is brought to a new level on the LTC 0610 Series Camera by XF-Dynamic technology. XF-Dynamic automatically processes the highly accurate 15-bit digital signal to optimally capture the detail in both the highlight and lowlight areas of the scene simultaneously, to maximize the information visible in the picture.

Bilinx Technology

The LTC 0610 Series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate setup and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Video Motion Detection

The built-in video motion detector allows you to select up to four fully programmable areas with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected alarms may be displayed in the video signal, the output relay can be closed in addition to alarm message transmission on Bilinx.

Auto Black

The automatic black level feature, enhances contrast by removing veiling glare from the picture or when contrast is reduced by fog or mist.

Default Shutter

When viewing moving objects a fast shutter speed is required. When using a fast shutter speed the lens opening or gain control needs to be increased to maintain the video signal. The camera sensitivity is limited by the fast shutter speed. The default shutter setting of the LTC 0610 offers the best of all worlds, fast shutter speed as long as there is sufficient light, however as the light level falls, when other adjustments have been exhausted, the shutter reverts to the standard setting maintaining the cameras excellent sensitivity.

Back Light Compensation (BLC)

Offering a fully programmable BLC area of interest, and a variable BLC level, the camera can be easily set up for even the most challenging entrance applications.

Lens Wizard

The LTC 0610 Series automatically detects the type of lens installed. The Lens Wizard will focus the lens at the maximum lens opening, to ensure that focus is maintained throughout the entire 24-hour day/night cycle. No special tools or filters are required.

Programmable Modes

The camera supports three independent operating modes. The 3 modes are preprogrammed for typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

NightSense

The LTC 0610 cameras feature NightSense. With NightSense the sensitivity is increased by 9 dB in monochrome mode. NightSense can be automatically activated in low light situations, or remotely using Bilinx.

SensUp

By increasing the integration time on the CCD up to 10 times, the effective sensitivity is dramatically enhanced, especially useful where there is no artificial lighting and you rely on the moon, stars and scattered radiation.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity

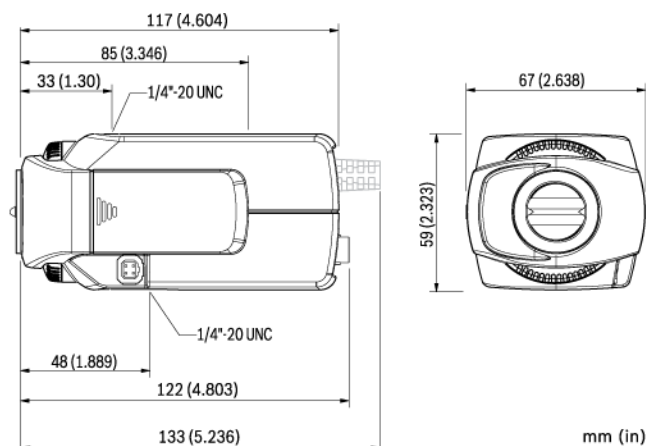
Electro Magnetic Compatibility

Emission	EN55022 class B, FCC class B part 15
Immunity	EN50130-4 Alarm Systems, Part 4
Vibration	Camera with 500 gr (1.1 lbs) lens according to IEC60068-2-27

Safety

LTC 0610/11 and LTC 0610/51: EN60065
LTC 0610/21 and LTC 0610/61: UL6500, cUL CAN/CSA E60065-00

Installation/Configuration Notes



Dimensions in mm (inches)

Parts Included

Quantity	Components
1	LTC 0610 Series Dinion ^{XF} Color Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Rated Voltage	
LTC 0610/11	12-28 VAC	45-65 Hz
	11-39 VDC	
LTC 0610/21	12-28 VAC	45-65 Hz
	11-39 VDC	
LTC 0610/51	85-265 VAC	45-65 Hz
LTC 0610/61	85-265 VAC	45-65 Hz
Power Consumption	4 W	
Imager	Interline CCD type, 1/2-in. image format	

Active Pixels

PAL Models	752 H x 582 V
NTSC Models	768 H x 492 V

Sensitivity (3200 k)

Sensitivity (full vid-eo) ¹⁾	1.4 lx (0.14 fc)
Sensitivity 50 IRE ¹⁾	0.35 lux / 0.14 lux (NightSense) (0.035 fc / 0.014 fc (NightSense))
Minimum Illumination ¹⁾	0.18 lux / 0.08 lux (NightSense) (0.018 fc / 0.008 fc (NightSense))
Minimum Illumination with SensUp	0.018 lux / 0.008 lux (NightSense) (0.0018 fc / 0.0008 fc (NightSense))
Horizontal Resolution	540 TVL
Signal-to-Noise-Ratio	> 50dB

Sensitivity (3200 k)

Video Output	1Vpp, 75 Ohm
Y/C Output	Y: 1 Vpp / C: 0.3 Vpp
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable
Shutter	Auto (1/60 (1/50) to 1/500000), fixed, flickerless, default
Night Sense	Auto, forced, off
Sensitivity up	Off, automatic continuous up to 10x
Auto Black	On, off selectable
Dynamic Range	32x dynamic range enhancement
Dynamic Noise Reduction	Auto, off selectable
Contour	Sharpness enhancement level selectable
BLC	Off, area and level selectable
Gain	Auto (maximum level selectable to 28 dB) or fixed level selectable
Lens Mount	C and CS
White Balance	ATW (2500–10000 K), AWB hold, manual WB selectable
VMD	4 area, sensitivity selectable
Alarm Output	VMD or Bilinx
Alarm Input (TTL)	Profile switching, +5 V nominal, +40 VDC max.
Alarm Output Relay	Max. 30 VAC or +40 VDC, max. 0.5 A continuous, 10 VA
External Synchronal Input	75 Ohm or High Impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic setup in combination with coaxial communication)
Camera ID	16 character editable string, position selectable
Lens Types	Manual, DC- and Video-iris auto-detect with override DC-iris drive: max 50mA continuous Video-iris: 11.5 ± 0.5 VDC, max. 50 mA continuous
Remote Control	Bi-directional coaxial communication

1) F/1.2, 89% reflection, SensUp off

Mechanical

Dimensions (H x W x L)	59 x 67 x 122 mm (2.28 x 2.6 x 4.8 in.) without lens
Weight	450 g (0.99 lbs) without lens
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC
Controls	OSD with softkey operation

Environmental

Operating Temperature	-20 °C to +50 °C (-4 °F to +122 °F)
Storage Temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Operating Humidity	20% to 93% Relative humidity
Storage Humidity	up to 98% Relative humidity

Ordering Information

LTC 0610/11 DinionXF Color Camera 1/2-inch, high performance, 540 TVL, PAL, DSP, 12 – 28 VAC/11 – 39 VDC, 50 Hz	LTC0610/11
LTC 0610/21 DinionXF Color Camera 1/2-inch, high performance, 540 TVL, NTSC, DSP, 12 – 28 VAC/11 – 39 VDC, 60 Hz	LTC0610/21
LTC 0610/51 DinionXF Color Camera 1/2-inch, high performance, 540 TVL, PAL, DSP, 85 – 265 VAC, 50 Hz	LTC0610/51
LTC 0610/61 DinionXF Color Camera 1/2-inch, high performance, 540 TVL, NTSC, DSP, 85 – 265 VAC, 60 Hz	LTC0610/61
Accessories	
LTC 3264/30 Varifocal Lens 1/2-inch, 4.5 – 10 mm, DC-iris, CS-mount F1.6-360, 4-pin	LTC3264/30
LTC 3274/41 Varifocal Lens 1/2-inch, 7.5 – 75 mm, DC-iris, C-mount, F1.7-360, 4-pin	LTC3274/41
LTC 3283/20 Zoom Lens 1/2-inch, 8.0 – 48 mm, Video-iris, CS-mount F1.4-360, 4-pin	LTC3283/20
TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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LTC 0455 Series Dinion Color Cameras



Features

- ▶ **1/3-inch format CCD imager**
- ▶ **High sensitivity**
- ▶ **Advanced digital signal processing**
- ▶ **540 TVL resolution with outstanding picture quality**
- ▶ **Extended sensitivity with NightSense**
- ▶ **Auto detection of lens type with lens wizard**
- ▶ **Easy to install**
- ▶ **Accepts AC or DC voltages**

The LTC 0455 Series are compact rugged, 1/3-inch image format digital color CCD cameras. Their superior sensitivity, 540 TVL resolution and picture quality provide optimal performance in virtually all situations. Easy Installation, digital signal processing, on screen displays, superior picture quality and reliability, brings the video performance of high resolution color cameras to a level never reached before and makes the LTC 0455 Series the best choice for first time and professional users.

This fully automatic camera is ready to work for you, and is easy to install in even the most demanding applications. On-screen Displays (OSD) provide quick and easy access to all camera features.

The LTC 0455 cameras also comes with a lens wizard that automatically detects the type of lens installed and provides an OSD guide that allows the installer to easily adjust the lens level and focus without special tools or filters.

The automatic black level feature, now introduced in color cameras, enhances contrast by removing veiling glare from the picture. NightSense is used to further extend the excellent sensitivity by a factor 3 in monochrome operation. This mode can be automatically activated under low light situations.

Automatic sensing for tracking white balance, provides true to life color images in indoor and outdoor applications.

The ability to operate on AC or DC provides added flexibility to system designs and reduces the amount of training and support items to keep on-hand.

Functions

Bilinx Technology

The LTC 0455 series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx, technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Certifications and Approvals

Region	Certification
Europe	CE Declaration of Conformity
USA	FCC Declaration of Conformity

Electromagnetic Compatibility

EMC Immunity	According EN50130-4
EMC Emission	According EN505022 class B, According FCC class B part 15

Safety

LTC 0455/11 and LTC 0455/51: EN60065
LTC 0455/21 and LTC 0455/61: UL6500

Parts Included

Quantity	Components
1	LTC 0455 Series Color Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications**Electrical**

Model No.	Rated Voltage	Range	System
LTC 0455/11	12 VDC	10.8-39 VDC	PAL
	24 VAC 50 Hz	12-28 VAC 45-65 Hz	PAL
LTC 0455/21	12 VDC	10.8-39 VDC	NTSC
	24 VAC 60 Hz	12-28 VAC 45-65 Hz	NTSC
LTC 0455/51	230 VAC 50 Hz	85-265 VAC 45-65 Hz	PAL
LTC 0455/61	120 VAC 60 Hz	85-265 VAC 45-65 Hz	NTSC

Power Consumption 4 W, excluding lens

Imager Interline transfer CCD, 1/3-inch image format

Active Pixels

PAL Models 752 H x 582 V

NTSC Models 768 H x 494 V

Sensitivity (3200 k)

	Usable Picture (30 IRE)	Usable Picture (50 IRE)	Full Video
Scene Illumination ¹⁾ (color mode)	0.30 lux (0.03 fc)	0.65 lux (0.07 fc)	2.6 lux (0.26 fc)
Imager Illumination (color mode)	0.045 lux (0.005 fc)	0.10 lux (0.010 fc)	0.40 lux (0.040 fc)
Scene Illumination ¹⁾ (night mode)	0.12 lux (0.012 fc)	0.26 lux (0.026 fc)	1.04 lux (0.104 fc)
Imager Illumination (night mode)	0.018 lux (0.002 fc)	0.040 lux (0.004 fc)	0.16 lux (0.016 fc)
Horizontal Resolution	540 TVL		
Signal-to-Noise Ratio	50 dB		
Gain	21 dB, (max)		
Electronic Shutter	Automatic, 1/50 to 1/125000 sec. (CCIR), 1/60 to 1/150000 sec. (EIA)		
Aperture Correction	Horizontal and vertical, symmetrical		
Backlight Compensation	Center window weighting		
White Balance	Automatic sensing (2500–9000 K)		
Video Output	Composite video 1.0 Vpp, 75 Ohm		

Synchronization

Line-Lock (when powered by AC only) Synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (0-358 degrees) to allow vertical synchronization in multi-phase power installations.

Free Running (when DC-supply or L/L off) Internal crystal reference is standard on all models.

Controls

Video level

Shutter: AES / Off / Flickerless

AGC: On / Off

BLC: On / Off

Auto Black: On / Off

NightSense On / Auto / Forced

ATW: On / Hold

R-offset, B-offset

Vphase Adjustment: 0 – 358 degrees

1) For f/1.2 lens, 89% scene reflectance.

Mechanical

Connectors Video Output: BNC
Video/DC-iris connector: 4-pin EIA-J

Power

LTC 0455/11 and LTC 0455/21 Push type connectors, polarity independent, isolated from video output terminals

LTC 0455/51 2-wire power cord with Euro plug

LTC 0455/61 2-wire power cord with polarized plug

Camera Mounting Top and Bottom, 1/4-inch 20 UNC

Lens Mounting C and CS

Dimensions (H x W x D) 58 x 66 x 122 mm (2.28 x 2.6 x 4.8 in.) including connectors

Weight 0.45 kg (0.99 lb)

Environmental

Operating Temperature -20°C to 50°C (-4°F to 122°F)

Storage Temperature -25°C to 70°C (-13°F to 158°F)

Operating Humidity 5% to 93% non-condensing

Ordering Information

LTC 0455/11 Dinion Color Camera **LTC0455/11**
1/3-inch, 540 TVL, PAL, DSP, 12 VDC/24 VAC, 50 Hz

LTC 0455/21 Dinion Color Camera **LTC0455/21**
1/3-inch, 540 TVL, NTSC, DSP, 12 VDC/24 VAC, 60 Hz

LTC 0455/51 Dinion Color Camera **LTC0455/51**
1/3-inch, 540 TVL, PAL, DSP, 230 VAC, 50 Hz

LTC 0455/61 Dinion Color Camera **LTC0455/61**
1/3-inch, 540 TVL, NTSC, DSP, 120 VAC, 60 Hz

Accessories

TC120PS Power Supply Unit **TC120PS**
110-120 VAC/15 VDC, 50/60 Hz, 300 mA

TC220PS Power Supply Unit **TC220PS**
230 VAC/12 VDC, 50 Hz, 10 VA

TC1334 Power Supply Unit **TC1334**
120 VAC/24 VAC, 60 Hz, 30 VA

LTC 0440 Series Dinion Color Cameras



Features

- ▶ **1/3-inch format CCD imager**
- ▶ **High sensitivity**
- ▶ **Advanced digital signal processing**
- ▶ **High resolution with outstanding picture quality**
- ▶ **Auto detection of lens type with Lens Wizard**
- ▶ **Easy to install**
- ▶ **Accepts AC or DC voltages**

The LTC 0440 series are compact rugged, 1/3-inch image format digital color CCD cameras. Their superior sensitivity, 480 TVL resolution and picture quality provide optimal performance in virtually all situations. This fully automatic camera is ready to work for you, and is easy to install in even the most demanding applications. Onscreen Displays (OSD) provide quick and easy access to all camera features. The LTC 0440 cameras also comes with a lens wizard that automatically detects the type of lens installed and provides an OSD guide that allows the installer to easily adjust the lens level and focus without special tools or filters.

Automatic sensing for tracking white balance, provides true to life color images in indoor and outdoor applications. The ability to operate on AC or DC provides added flexibility to system designs and reduces the amount of training and support items to keep on hand. Easy Installation, digital signal processing, on screen displays, superior picture quality and reliability brings the video performance of high resolution color cameras to a level never reached before and makes the LTC 0440 series the best choice for first time and professional users.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity

Electromagnetic Compatibility:

EMC Immunity:	According EN50130-4
EMC Emission:	According EN505022 class B
	According FCC, class B part 15

Safety:

LTC 0440/10 and LTC 0440/50: EN60065
LTC 0440/20 and LTC 0440/60: UL6500

Parts Included

Quantity	Components
1	LTC 0440 Series Color Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Rated Voltage	Range	System
LTC 0440/10	12 VDC	10.8-39 VDC	PAL
	24 VAC 50Hz	12-28 VAC 45-65 Hz	PAL
LTC 0440/20	12 VDC	10.8-39 VDC	NTSC
	24 VAC 60Hz	12-28 VAC 45-65 Hz	NTSC
LTC 0440/50	230 VAC 50Hz	85-265 VAC 45-65 Hz	PAL
LTC 0440/60	120 VAC 60Hz	85-265 VAC 45-65 Hz	NTSC
Power Consumption	4 W, excluding lens		
Imager	Interline transfer CCD, 1/3-inch image format		

Active Pixels

PAL Models:	752 H x 582 V
NTSC Models:	768 H x 494 V

Sensitivity (3200 k)

	Min. Illumination(30 IRE)	Usable Picture (50 IRE)	Full Video
Scene Illumination ¹⁾	0.40 lux (0.04 fc)	0.87 lux (0.09 fc)	3.5 lux (0.35 fc)
Imager Illumination	0.060 lux (0.006 fc)	0.13 lux (0.013 fc)	0.53 lux (0.053 fc)

Horizontal Resolution	480 TVL
Signal-to-Noise Ratio	50 dB
AGC	21 dB (max)
Electronic Shutter	Automatic, 1/50 to 1/125000 sec. (CCIR), 1/60 to 1/50000 sec. (EIA)
Aperture Correction	Horizontal and vertical symmetrical.
Backlight Compensation	Center window weighting
Video Output	Composite video 1.0 Vpp, 75 ohm

Synchronization

Line-Lock (when powered by AC only)	Synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (0-358 degrees) to allow vertical synchronization in multi-phase power installations.
Free Running (when DC-supply or L/L off)	Internal crystal reference is standard on all models

Controls

Video level
Shutter: AES / off / flickerless
AGC: On / Off
BLC: On / Off
ATW: On / Hold
R-offset
B-offset
Vphase Adjustment: 0 - 358 degrees

1) For f/1.2 lens, 89% scene reflectance.

Mechanical

Connectors	- Video Output: BNC - Video/DC-iris connector: 4-pin EIA-J
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Power

LTC 0440/10 and LTC 0440/20	Push type connectors, polarity independent, isolated from video output terminals
LTC 0440/50	2-wire power cord with plug
LTC 0440/60	2-wire power cord with polarized plug
LensMounting	C and CS
Dimensions (H x W x D)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 inch) inc. connectors
Weight	0.45 kg (0.99 lb)

Environmental

Operating Temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Storage Temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Operating Humidity	5% to 93% non-condensing

Ordering Information

LTC 0440/10 Dinion Color Camera 1/3-inch, 480 TVL, PAL, DSP, 12 VDC/24 VAC, 50Hz	LTC0440/10
LTC 0440/50 Dinion Color Camera 1/3-inch, 480 TVL, PAL, DSP, 230 VAC, 50Hz	LTC0440/50
Accessories	
TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

LTC 0435 Series Dinion Color Cameras



Features

- ▶ 1/3-inch format CCD imager
- ▶ High sensitivity
- ▶ Advanced digital signal processing
- ▶ Standard resolution
- ▶ Auto detection of lens type
- ▶ Easy to install
- ▶ Accepts AC or DC voltages

The LTC 0435 Series are compact rugged, 1/3-inch image format digital color CCD cameras. Their superior sensitivity and resolution provide optimal performance in virtually all environments.

Easy Installation, digital signal processing, on screen displays, superior picture quality and reliability brings the video performance of standard resolution color cameras to a level never reached before and makes the LTC 0435 Series the best choice for first time and professional users.

This fully automatic camera is ready to work for you, and is easy to install in even the most demanding applications. On-screen Displays (OSD) provide quick and easy access to all camera features.

The LTC 0435 cameras also comes with a lens wizard that automatically detects the type of lens installed and provides an OSD guide that allows the installer to easily adjust the lens level and focus without special tools or filters. The automatic black level feature, now introduced in color cameras, enhances contrast by removing veiling glare from the picture.

The wide range of through the lens automatic sensing tracking white balance provides true to life color images for indoor and outdoor applications. The ability to operate on AC or DC provides added flexibility to system designs and reduces the amount of training and support items to keep on-hand.

Functions

Bilinx Technology

The LTC 0435 Series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. A camera with Bilinx allows technicians to check status, change camera settings, and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity

Electromagnetic Compatibility

EMC Immunity	According EN50130-4
EMC Emission	According EN505022 class B, According FCC class B part 15

Safety

LTC 0435/10 and LTC 0435/50: EN60065
LTC 0435/20 and LTC 0435/60: UL6500

Parts Included

Quantity	Components
1	LTC 0435 Series Color Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications**Electrical**

Model No.	Rated Voltage	Range	System
LTC 0435/10	12 VDC	10.8-39 VDC	PAL
	24 VAC 50 Hz	12-28 VAC 45-65 Hz	PAL
LTC 0435/20	12 VDC	10.8-39 VDC	NTSC
	24 VAC 60 Hz	12-28 VAC 45-65 Hz	NTSC
LTC 0435/50	230 VAC 50 Hz	85-265 VAC 45-65 Hz	PAL
LTC 0435/60	120 VAC 60 Hz	85-265 VAC 45-65 Hz	NTSC

Power Consumption 4 W, excluding lens

Imager Interline transfer CCD, 1/3-inch image format

Active Pixels

PAL Models	500 H x 582 V
NTSC Models	510 H x 494 V

Sensitivity (3200 k)

	Usable Picture (50 IRE)	Full Video
Scene Illumination ¹⁾	0.39 lux (0.039 fc)	1.6 lux (0.16 fc)
Imager Illumination	0.06 lux (0.006 fc)	0.24 lux (0.024 fc)
Horizontal Resolution	330 TVL	
Signal-to-Noise Ratio	50 dB	
AGC	21 dB (max)	
Electronic Shutter	Automatic, 1/50 to 1/125000 sec. (CCIR), 1/60 to 1/150000 sec. (EIA)	
Aperture Correction	Horizontal & vertical symmetrical	
Backlight Compensation	Center window weighting	
White Balance	Automatic sensing (2500-9000 K)	
Video Output	Composite video 1.0 Vpp, 75 Ohm	

Synchronization

Line-Lock (when powered by AC only)	Synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (0–358 degrees) to allow vertical synchronization in multi-phase power installations
Free Running (when DC-supply or L/L off)	Internal crystal reference is standard on all models.

Controls

Video level
Shutter: AES / off / flickerless
AGC: on / off
BLC: on / off
Auto ATW: on / hold black: on / off
R-offset

B-offset

Vphase adjustment: 0 - 358 degrees

1) For F/1.2, 89% scene reflectance.

Mechanical

Connectors	- Video Output: BNC
	- Video/DC-iris connector 4-pin EIA-J

Power

LTC 0435/10 and LTC 0435/20	Push type connectors, polarity independent, isolated from video output terminals
LTC 0435/50	2-wire power cord with Euro plug
LTC 0435/60	2-wire power cord with polarized plug
Tripod Mount	Top and Bottom, 1/4-in. 20 UNC
Lens Mount	C and CS
Dimensions (H x W x D)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 in.) including connectors
Weight	0.45 kg (0.99 lb)

Environmental

Operating Temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Storage Temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Operating Humidity	5% to 93% non-condensing

Ordering Information

LTC 0435/10 Dinion Color Camera 1/3-inch, 330 TVL, PAL, DSP, 12 VDC/24 VAC, 50 Hz	LTC0435/10
LTC 0435/20 Dinion Color Camera 1/3-inch, 330 TVL, NTSC, DSP, 12 VDC/24 VAC, 60 Hz	LTC0435/20
LTC 0435/50 Dinion Color Camera 1/3-inch, 330 TVL, PAL, DSP, 230 VAC, 50 Hz	LTC0435/50
LTC 0435/60 Dinion Color Camera 1/3-inch, 330 TVL, NTSC, DSP, 120 VDC, 60 Hz	LTC0435/60

Accessories

TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

V118xP Bullet Cameras



Features

- ▶ Choice of color or black & white camera
- ▶ Rugged die-cast aluminum housing
- ▶ Mounting bracket supplied
- ▶ Resistant to vandalism
- ▶ Easy to install

The V1180P and V1182P provide a wide range of features. These small, sleek, rugged cameras can be easily installed in almost any architectural design and provide the ultimate in anti-vandalism protection with their diecast aluminum housings. The V1180P and V1182P are even submersible in water to a depth of 3 m.

These cameras provide a variety of features that make choosing the best camera for a particular application easy and affordable.

The Black & White fixed focus (3.6-mm) camera (V1180P) delivers 380 TV lines of horizontal resolution with a signal-to-noise ratio greater than 50 dB at light levels as low as 0.03 lux.

The color fixed focus camera (V1182P) provides 330 TV lines of horizontal resolution with a signal-to-noise ratio greater than 46 dB at light levels as low as 0.3 lux through its 3.6-mm lens.

Technical Specifications

Electrical - V1180P

Power

Input Voltage	12 VDC
Input Current	<160 mA

Video

Pick-up Device	B/W 1/3-in. CCD, CCD Area Sensor; 512 (H) x 582 (V)
SYNC System	Internal
Output	1.0 to 1.1 Vpp CCIR Composite
Minimum Illumination	0.03 lux (0.003 fc)
Gamma	0.45
Backlight Compensation	On

Lens & Iris

Lens	3.6 mm monofocal
Auto-iris	CCD shutter iris
Iris Speed	1/50–1/50000
Signal-to-Noise-Ratio	>50 dB
Horizontal Resolution	>380 TVL
Submersible Depth	3 m

Mechanical

Dimensions (H x Dia.)	57 x 19 mm (2.24 x 0.75 in.)
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Environmental

Ambient Temperature	-10°C to +50°C
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Electrical - V1182P

Power

Input Voltage	12 VDC
Input Current	<120 mA

Video

Pick-up Device	Color 1/3-inch CCD, Interline Transfer; 512 (H) x 582 (V)
SYNC System	Internal
Output	1 Vpp PAL Composite
Minimum Illumination	0.3 lux (0.03 fc) (F1.2 10 IRE)
Gamma	0.45
Backlight Compensation	On

Lens & Iris

Lens	3.6 mm monofocal
Auto-iris	CCD shutter iris
Iris Speed	1/50–1/100000
Signal-to-Noise-Ratio	>46 dB
Horizontal Resolution	>330 TVL
Submersible Depth	3 m

Mechanical

Dimensions (H x Dia.)	71 x 21 mm (2.8 x 0.83 in.)
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Environmental

Ambient Temperature	-10°C to +50°C
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Ordering Information

V1180P Monochrome Bullet Camera 1/3-inch, indoor, B/W CCIR, 380 TVL, 3.6 mm, 12 VDC	V1180P
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V1182P Color Bullet Camera 1/3-inch, indoor, 380 TVL, PAL, 3.6 mm, 12 VDC	V1182P
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VP-RS2BLNX Protocol Converter



Features

- ▶ **RS-232 and RS-485 to Bilinx converter**
- ▶ **Compatible with Dinion, Dinion^{XF}, Autodome cameras**
- ▶ **Robust design**
- ▶ **Wide-range power supply**

The VP-RS2BLNX is a protocol converter that allows the integration of remotely accessible cameras for control and set-up into an (existing) RS-232 or RS-485 infrastructure.

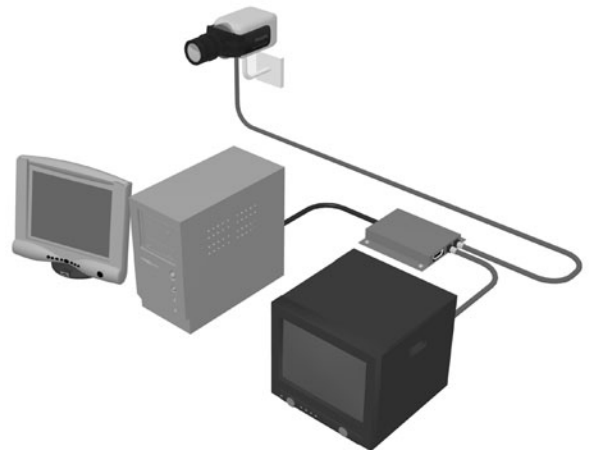
When connected to Bosch cameras with Bilinx capabilities, the VP-RS2BLNX converts RS-232 or RS-485 messages into Bilinx communication data. In this way, Bosch cameras with Bilinx can be controlled directly from computers, digital recorders or video management systems.

The VP-RS2BLNX is suitable for use with Dinion, Dinion^{XF} and all Bilinx-enabled AutoDome cameras. Applications typically include Traffic Management systems and Video Content Analysis systems where the camera performance needs to be optimized during operation.

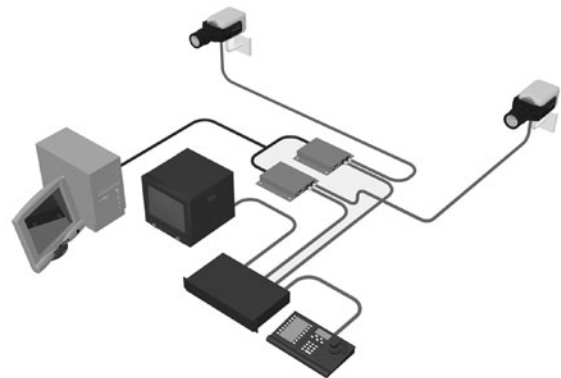
Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
Safety	UL 60950-1; EN50950-1 (CE)	
Immunity	EN50130-4 (CE)	
Emission	EN55022 Class B (CE) EN61000-3-2 (CE) EN61000-3-3 (CE)	

Installation/Configuration Notes



RS-232 configuration example



RS-485 configuration example

Technical Specifications

Electrical

Power	12-28 VAC (50/60 Hz) and 12-40 VDC (polarity independent). Galvanically insulated from video, RS-232 ground and casing.
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Speed

RS-485	9600 baud
RS-232	9600 or 4800 baud selectable

Video connectors	BNC connections, passive loop through, high impedance, Video input 1 Vpp nominal, 2 Vpp max.
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Protocol	The serial protocol is described in the Serial Protocol Description. This document is available upon request from Bosch Security Systems.
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Dimensions (L x W x H)	88.5x100x28 mm (3.38x3.94x1.1 inch)
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Temperature range

Operating/storage	-20 °C to +50 °C (-4 °F to 122 °F)
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Comparison table

	Min.	Typ.	Max.	Unit
Power supply input voltage AC	10.8	-	28	V
Power supply input voltage DC	10.8	-	40	V
Power consumption	-	1.3	2	W

RS-232

Input voltage operating range	-24	-	24	V
Input logic threshold LOW	0.8	1.2	-	V
Input logic threshold HIGH	-	1.7	2.4	V
Input hysteresis	0.2	0.5	1	V
Input resistance	3	5	7	Kohm
Output voltage swing (with 3 kOhm load)	-7.8	-	7.8	V
Output resistance	400	-	-	ohm
Data rate	4.8	9.6	-	Kbits/s

RS-485

Input voltage operating range	-7		12	V
Differential input logic threshold LOW	-	-0.2	-	V
Differential input logic threshold HIGH	-	0.2	-	V
Differential input hysteresis	-	70	-	mV
Input resistance	24	-	-	Kohm
Differential output (no load)	-	-	5	V
Common-mode output (load = 50 ohm)	-	-	3	V
Data rate	-	9.6	-	Kbit/s

Note: For RS-485 communication, a maximum of 64 transceivers is permissible on a single bus.

Ordering Information**VP-RS2BLNX Protocol Converter**

RS-232 / RS-485 infrastructure, Bilinx to
USB adaptor for use with configuration tool
for dome/cameras.

VP-RS2BLNX

LTC 0335 Series Dinion Monochrome Cameras



Features

- ▶ 1/3-inch format CCD imager
- ▶ High sensitivity
- ▶ Advanced digital signal processing
- ▶ Standard resolution
- ▶ Auto detection of lens type
- ▶ Easy to install
- ▶ Accepts AC or DC voltages

The LTC 0335 Series are compact, rugged, 1/3-inch image format digital monochrome CCD cameras. Their superior sensitivity and resolution provide optimal performance in virtually all environments. Easy Installation, digital signal processing, on screen displays, superior picture quality and reliability brings the video performance of standard resolution monochrome cameras to a level never reached before. The LTC 0335 Series is the best choice for first time and professional users.

The LTC 0335 camera also comes with a lens wizard that automatically detects the type of lens installed. An OSD guide that allows the installer to easily adjust the lens level and focus without special tools or filters.

The ability to operate on AC or DC provides added flexibility to system designs and reduces the amount of training and support items to keep on-hand.

This fully automatic camera is ready to work for you, and is easy to install in even the most demanding applications. On-screen Displays (OSD) provide quick and easy access to all camera features.

Functions

Bilinx Technology

The LTC 0335 Series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity

Electromagnetic Compatibility

EMC Immunity: According EN50130-4

EMC Emission: According EN505022 class B

According FCC, class B part 15

Safety

LTC 0335/10 and LTC 0335/50: EN60065

LTC 0335/20 and LTC 0335/60: UL6500

Parts Included

Quantity Component

1	LTC 0335 Series Monochrome Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Rated Voltage	Voltage Range	System
LTC 0335/10	12 VDC	10.8–39 VDC	CCIR
	24 VAC 50 Hz	12–28 VAC 45–65 Hz	CCIR
LTC 0335/20	12 VDC	10.8–39 VDC	EIA
	24 VAC 60 Hz	12–28 VAC 45–65 Hz	EIA
LTC 0335/50	230 VAC 50 Hz	85–265 VAC 45–65 Hz	CCIR
LTC 0335/60	120 VAC 60 Hz	85–265 VAC 45–65 Hz	EIA

Power Consumption	4 W, excluding lens
Imager	Interline transfer CCD
	1/3-inch image format

Active Pixels

CCIR Models:	512 H x 582 V
EIA Models:	512 H x 492 V

Sensitivity (3200 k)

	Usable Picture (50 IRE)	Full Video
Scene Illumination ¹⁾	0.12 lux (0.01 fc)	0.48 lux (0.048 fc)
Imager Illumination	0.024 lux (0.0024 fc)	0.10 lux (0.010 fc)
Horizontal Resolution	380 TVL	
Signal-to-Noise Ratio	50 dB	
Gain	Auto, 21 dB (max)	
Electronic Shutter	Automatic, 1/50 to 1/500000 sec. (CCIR), 1/60 to 1/600000 sec. (EIA)	
Aperture Correction	Horizontal and vertical, symmetrical	
Backlight Compensation	Center window weighting	
Video Output	Composite video 1.0 Vpp, 75 Ohm	

Synchronization

Line-lock	(When powered by AC only) Synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (0–358 degrees) to allow vertical synchronization in multi-phase power installations.
Crystal-lock	(When DC-supply or L/L off) Internal crystal reference is standard on all models.

Controls

Video level
Shutter: AES / off / flickerless
AGC: on / off
BLC: on / off
Auto black: on / off
Vphase adjustment: 0–358 degrees

1) For F/1.2, 89% scene reflectance

Mechanical

Connectors	Video output: BNC
	Video/DC-IRIS connector: 4-pin EIA-J

Power

LTC 0335/10 and LTC 0335/20	Push type connectors, polarity independent, isolated from video output terminals
LTC 0335/50	2-wire Power cord with Euro plug
LTC 0335/60	2-wire Power cord with polarized plug
Tripod Mount	Top and bottom, 1/4-inch 20 UNC
Lens Mount	C and CS
Dimensions (H x W x D)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 in.) including connectors
Weight	0.45 kg (0.99 lb)

Environmental

Operating Temperature	-20 °C to 50 °C (-4 °F to 122 °F)
Storage Temperature	-25 °C to 70 °C (-13 °F to 158 °F)
Operating Humidity	5% to 93% non-condensing

Ordering Information

LTC 0335/10 Dinion Monochrome Camera 1/3-inch B/W CCIR, DSP, 380 TVL, 12 VDC/ 24VAC, 50 Hz	LTC0335/10
LTC 0335/20 Dinion Monochrome Camera 1/3-inch B/W EIA, DSP, 380 TVL, 12 VDC/ 24VAC, 60 Hz	LTC0335/20
LTC 0335/50 Dinion Monochrome Camera 1/3-inch B/W CCIR, DSP, 380 TVL, 230 VAC, 50 Hz	LTC0335/50
LTC 0335/60 Dinion Monochrome Camera 1/3-inch B/W EIA, DSP, 380 TVL, 120 VAC, 60 Hz	LTC0335/60

Accessories

TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

LTC 0355 Series Dinion Monochrome Cameras



Features

- ▶ 1/3-inch format CCD imager
- ▶ High sensitivity
- ▶ Advanced digital signal processing
- ▶ High resolution
- ▶ Auto detection of lens type
- ▶ Easy to install
- ▶ Accepts AC or DC voltage

The LTC 0355 Series are compact rugged, 1/3-inch image format digital high monochrome CCD cameras. Their superior sensitivity and high resolution provide optimal performance in virtually all environments. Easy Installation, digital signal processing, on screen displays, superior picture quality and reliability brings the video performance of high resolution monochrome cameras to a level never reached before. The LTC 0355 series is the best choice for first time and professional users.

The LTC 0355 cameras also comes with a lens wizard that automatically detects the type of lens installed and provides an OSD guide that allows the installer to easily adjust the lens level and focus without special tools or filters. The ability to operate on AC or DC provides added flexibility to system designs and reduces the amount of training and support items to keep on-hand.

This fully automatic camera is ready to work for you, and is easy to install in even the most demanding applications. On-screen displays (OSD) provide quick and easy access to all camera features.

Functions

Bilinx Technology

The LTC 0355 Series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Certifications and Approvals

Region	Certification
Europe	CE EC-Declaration of Conformity

Electromagnetic Compatibility

EMC Immunity: According EN50130-4

EMC Emission: According EN505022 class B, According FCC, class B part 15

Safety

LTC 0355/10 and LTC 0355/50: EN60065

LTC 0355/20 and LTC 0355/60: UL6500

Parts Included

Quantity	Components
1	LTC 0355 Series Monochrome Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Rated Voltage	Voltage Range	System
LTC 0355/10	12 VDC	10.8–39 VDC	CCIR
	24 VAC 50 Hz	12–28 VAC 45–65 Hz	CCIR
LTC 0355/20	12 VDC	10.8–39 VDC	EIA
	24 VAC 60 Hz	12–28 VAC 45–65 Hz	EIA
LTC 0355/50	230 VAC 50 Hz	85–265 VAC 45–65 Hz	CCIR
LTC 0355/60	120 VAC 60 Hz	85–265 VAC 45–65 Hz	EIA
Power Consumption	4 W, excluding lens		
Imager	Interline transfer CCD, 1/3-inch image format		

Active Pixels

CCIR Models: 752 H x 582 V

EIA Models: 582 H x 494 V

Sensitivity (3200 k)

	Usable Picture (50 IRE)	Full Video
Scene Illumination ¹⁾	0.09 lux (0.009 fc)	0.36 lux (0.036 fc)
Imager Illumination	0.018 lux (0.0018 fc)	0.072 lux (0.0072 fc)
Horizontal Resolution	570 TVL	
Signal-to-Noise Ratio	50 dB	
Gain	Auto, 21 dB (max)	
Electronic Shutter	Automatic, 1/50 to 1/500000 sec. (CCIR), 1/60 to 1/600000 sec. (EIA)	
Aperture Correction	Horizontal and vertical, symmetrical	
Backlight Compensation	Center window weighting	
Video Output	Composite video 1.0 Vpp, 75 Ohm	

Synchronization

Line-lock	(When powered by AC only) Synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (0–358 degrees) to allow vertical synchronization in multi-phase power installations.
Crystal-lock	(When DC-supply or L/L off) Internal crystal reference is standard on all models.

Controls

Video level
Shutter: AES / off / flickerless
AGC: on / off
BLC: on / off
Auto black: on / off
V-phase adjustment: 0–358 degrees

1) For F/1.2, 89% scene reflectance.

Mechanical

Connectors	Video output: BNC
	Video / DC-IRIS connector: 4-pin EIA-J
Power	
LTC 0355/10 and LTC 0355/20	Push type connectors, polarity independent, isolated from video output terminals
LTC 0355/50	2-wire Power cord with Euro plug
LTC 0355/60	2-wire Power cord with polarized plug
Tripod Mount	Top and bottom, 1/4-inch 20 UNC
Lens Mount	C and CS
Dimensions (H x W x D)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 in.) including connectors
Weight	0.45 kg (0.99 lb)

Environmental

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Storage Temperature	-25°C to 70°C (-13°F to 158°F)
Operating Humidity	5% to 93% non-condensing

Ordering Information

LTC 0355/10 Dinion Monochrome Camera 1/3-inch B/W CCIR, DSP, 570 TVL, 12 VDC/ 240 VAC, 50 Hz	LTC0355/10
LTC 0355/20 Dinion Monochrome Camera 1/3-inch B/W EIA, DSP, 570 TVL, 12 VDC/24 VAC, 60 Hz	LTC0355/20
LTC 0355/50 Dinion Monochrome Camera 1/3-inch B/W CCIR, DSP, 570 TVL, 230 VAC, 60 Hz	LTC0355/50
LTC 0355/60 Dinion Monochrome Camera 1/3-inch B/W EIA, DSP, 570 TVL, 120 VAC, 60 Hz	LTC0355/60

Accessories

TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

LTC 0356 Series Dinion Monochrome Cameras



Features

- ▶ **1/3-inch format CCD imager with IR cut filter**
- ▶ **High sensitivity**
- ▶ **Advanced digital signal processing**
- ▶ **High resolution**
- ▶ **Auto detection of lens type**
- ▶ **Easy to install**
- ▶ **Accepts AC or DC voltages**

The LTC 0356 Series are compact rugged, 1/3-inch image format digital monochrome CCD cameras. Their superior sensitivity and high resolution, combined with the IR cut filter on the sensor, provides optimal performance in traffic applications. Easy Installation, digital signal processing, on screen displays, superior picture quality and reliability brings the video performance of high resolution monochrome cameras to a level never reached before.

The LTC 0356 cameras also comes with a lens wizard that automatically detects the type of lens installed and provides an OSD guide that allows the installer to easily adjust the lens level and focus without special tools or filters.

The ability to operate on AC or DC provides added flexibility to system designs and reduces the amount of training and support items to keep on-hand.

This fully automatic camera is ready to work for you, and is easy to install in even the most demanding applications. On-screen Displays (OSD) provide quick and easy access to all camera features.

Functions

Bilinx Technology

The LTC 0356 Series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Certifications and Approvals

Region	Certification
Europe	CE EC-Declaration of Conformity

Electromagnetic Compatibility

EMC Immunity: According EN50130-4

EMC Emission: According EN505022 class B, According FCC, class B part 15

Safety

LTC 0356/10: EN60065

LTC 0356/20: UL6500

Parts Included

Quantity	Components
1	LTC 0356 Series Monochrome Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Rated Voltage	Voltage Range	System
LTC 0356/10	12 VDC	10.8–39 VDC	CCIR
	24 VAC 50 Hz	12–28 VAC 45–65 Hz	CCIR
LTC 0356/20	12 VDC	10.8–39 VDC	EIA
	24 VAC 60 Hz	12–28 VAC 45–65 Hz	EIA
Power Consumption	4 W, excluding lens		
Imager	Interline transfer CCD, 1/3-inch image format, with IR cut filter		
Active Pixels			
LTC 0356/10	752 H x 582 V		
LTC 0356/20	582 H x 494 V		

Sensitivity (3200 k)

	Usable Picture (50 IRE)	Full Video
Scene Illumination ¹⁾	0.2 lux (0.02 fc)	0.9 lux (0.09 fc)
Imager Illumination	0.05 lux (0.005 fc)	0.02 lux (0.002 fc)
Horizontal Resolution	570 TVL	
Signal-to-Noise Ratio	50 dB	
Gain	Auto, 21 dB (max)	
Electronic Shutter	Automatic, 1/50 to 1/500000 sec. (LTC 0356/10), 1/60 to 1/600000 sec. (LTC 0356/20)	
Aperture Correction	Horizontal and vertical, symmetrical	
Backlight Compensation	Center window weighting	
Video Output	Composite video 1.0 Vpp, 75 Ohm	

Synchronization

Line-lock	(When powered by AC only) Synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (0–358 degrees) to allow vertical synchronization in multi-phase power installations.
Crystal-lock	(When DC-supply or L/L off) Internal crystal reference is standard on all models.

Controls

Video level
Shutter: AES / off / flickerless
AGC: on / off
BLC: on / off
Auto black: on / off
V-phase adjustment: 0–358 degrees

1) For F/1.2, 89% scene reflectance.

Mechanical

Connectors	Video output: BNC Video/DC-Iris connector: 4-pin EIA-J
Power	Push type connectors, polarity independent, isolated from video output terminals
Tripod Mount	Top and bottom, 1/4-inch 20 UNC
Lens Mount	C and CS
Dimensions (H x W x D)	58 x 66 x 122 mm (2.28 x 2.6 x 4.8 in.) including connectors
Weight	0.45 kg (0.99 lb)

Environmental

Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Storage Temperature	-25°C to 70°C (-13°F to 158°F)
Operating Humidity	5% to 93% non-condensing

Ordering Information

LTC 0356/10 Dinion Monochrome Camera 1/3-inch B/W CCIR, DSP, 570 TVL, 12 VDC/ 24 VAC, 50 Hz, IR cut filter	LTC0356/10
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Accessories

TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

LTC 0385 Series DinionXF Monochrome Cameras



Features

- ▶ **15-bit DSP technology**
- ▶ **XF-dynamic**
- ▶ **Bilinx communication**
- ▶ **Default shutter**
- ▶ **Lens wizard**
- ▶ **Auto black**
- ▶ **Video motion detection**

The LTC 0385 Series of High Performance 1/3-inch Digital CCD Monochrome Cameras create the best possible image, even under the most difficult light and scene conditions.

Based on unique 15-bit digital video processing technology and employing XF-Dynamic, these cameras provide excellent sensitivity with extended dynamic range. By employing the best 1/3-inch CCD available, advanced front end processing, combined with the outstanding Dinion DSP, the cameras achieve an astonishing sensitivity, providing better images in low light situations and sharper daytime images.

All Dinion cameras are supplied ready to operate. Simply attach and focus the lens, and connect power to provide optimal pictures under virtually all scene conditions. No tools are required for back focus and power connection. For extra challenging situations where fine tuning or special settings are required, the camera parameters can be individually set using the control buttons on the side of the camera and On-screen Display (OSD). Also, to aid installation, the camera automatically detects the lens type, and using the Lens Wizard ensures accurate (back) focusing for perfectly sharp pictures at all times

Functions

XF-Dynamic

Extended dynamic range is brought to a new level on the LTC 0385 Series Camera by XF-Dynamic technology. XF-Dynamic automatically processes the highly accurate 15-bit digital signal to optimally capture the detail in both the highlight and lowlight areas of the scene simultaneously, to maximize the information visible in the picture.

Bilinx Technology

The LTC 0385 series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Video Motion Detection

The built-in video motion detector allows you to select up to four fully programmable areas with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected alarms may be displayed in the video signal, the output relay can be closed in addition to alarm message transmission on Bilinx.

Auto Black

The automatic black level feature, enhances contrast by removing veiling glare from the picture or when contrast is reduced by fog or mist.

Default Shutter

When viewing moving objects a fast shutter speed is required. When using a fast shutter speed the lens opening or gain control needs to be increased to maintain the video signal. The camera sensitivity is limited by the fast shutter speed. The default shutter setting of the LTC 0385 offers the best of all worlds, fast shutter speed as long as there is sufficient light, however as the light level falls, when other adjustments have been exhausted, the shutter reverts to the standard setting maintaining the cameras excellent sensitivity.

Back Light Compensation (BLC)

Offering a fully programmable BLC area of interest, and a variable BLC level, the camera can be easily set up for even the most challenging entrance applications.

Lens Wizard

The LTC 0385 series automatically detects the type of lens installed. The Lens Wizard will focus the lens at the maximum lens opening, to ensure that focus is maintained throughout the entire 24-hour day/night cycle. No special tools or filters are required.

Programmable Modes

The camera supports three independent operating modes. The 3 modes are preprogrammed for typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

SensUp

By increasing the integration time on the CCD up to 10 times, the effective sensitivity is dramatically enhanced, especially useful where there is no artificial lighting and you rely on the moon, stars and scattered radiation.

Certifications and Approvals

Region	Certification
Europe	CE EC-Declaration of Conformity

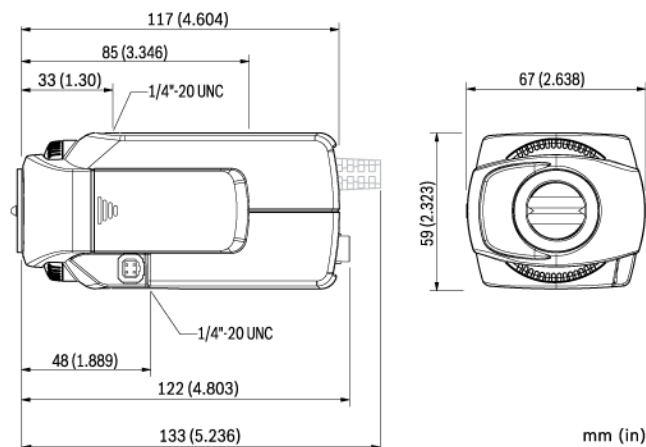
Electromagnetic Compatibility

Emission	EN55022 class B, FCC class B part 15
Immunity	EN50130-4 Alarm Systems, Part 4
Vibration	Camera with 500 gr (1.1 lbs) lens according to IEC60068-2-27

Safety

EN60065 (/10 and /50 models)
UL6500, cUL CAN/CSA E60065-00 (/20 and /60 models)

Installation/Configuration Notes



Dimensions in mm (inches)

Parts Included

Quantity	Components
1	LTC 0385 Series Dinion ^{XF} Monochrome Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Voltage Range	System
LTC 0385/10	12 – 28 VAC 11 – 39 VDC	CCIR
LTC 0385/20	12 – 28 VAC 11 – 39 VDC	EIA
LTC 0385/50	85 – 265 VAC	CCIR
LTC 0385/60	85 – 265 VAC	EIA
Power Consumption	4 W	
Imager	Interline transfer CCD, 1/3-inch image format	

Active Pixels

CCIR Models:	752 H x 582 V
EIA Models:	768 H x 492 V

Sensitivity

Sensitivity (Full video) ¹⁾	0.23 lux (0.023 fc)
Sensitivity 50 IRE ¹⁾	0.046 lux (0.0046 fc)
Minimum Illumination ¹⁾	0.031 lux (0.0031 fc)
Minimum Illumination with Sens UP	0.0031 lux (0.00031 fc)
Horizontal Resolution	570 TVL
Signal-to-Noise-Ratio	> 50 dB
Video Output	1 Vpp, 75 ohm
Synchronization	Internal, line lock or genlock selectable
Electronic Shutter	Auto (1/60 (1/50) to 1/500000), fixed, flickerless, default
Sensitivity Up	Off, automatic continuous up to 10x
Auto Black	On, off selectable
Range	32x dynamic range enhancement
Noise Reduction	Auto, off selectable
Contour	Sharpness enhancement level selectable
BLC	Off, area and level selectable
Gain	Auto (maximum level selectable to 28 dB) or fixed level selectable
VMD	4 area, sensitivity selectable
Alarm Output	VMD or Bilinx
Alarm Input(TTL)	Profile switching, +5 V nominal, +40 VDC max.
Alarm Output Relay	max. 30 VAC or +40 VDC, max. 0,5 A continuous, 10 VA
External Synchronal Input	75 ohm or high impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with coaxial communication)
Camera ID	16 character editable string, position selectable

Sensitivity

Lens Types	Manual, DC- and Video-Iris auto-detect with override DC-iris drive: max 50 mA continuous Video-iris: 11.5 ± 0.5 VDC, max 50 mA continuous
Remote Control	Bi-directional coaxial communication

1) F/1.2, 89% reflection, SenseUp off

Mechanical

Dimensions (H x W x L)	59 x 67 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	450 g (0.99 lbs) without lens
Tripod Mount	Bottom (isolated) and top 1/4-inch 20 UNC
Lens Mount	C and CS
Controls	OSD with softkey operation

Environmental

Operating Temperature	-20°C to +50°C (-4°F to +122°F)
Storage Temperature	-25°C to +70°C (-13°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH

Ordering Information

LTC 0385/10 DinionXF Monochrome Camera 1/3-inch B/W high performance CCIR, DSP, 570 TVL, 12-28 VAC/11-39 VDC, 50 Hz	LTC0385/10
LTC 0385/20 DinionXF Monochrome Camera 1/3-inch B/W high performance EIA, DSP, 570 TVL, 12-28 VAC/11-39 VDC, 60 Hz	LTC0385/20
LTC 0385/50 DinionXF Monochrome Camera 1/3-inch B/W high performance CCIR, DSP, 570 TVL, 85-265 VAC, 50 Hz	LTC0385/50
LTC 0385/60 DinionXF Monochrome Camera 1/3-inch B/W high performance EIA, DSP, 570 TVL, 85-265 VAC, 60 Hz	LTC0385/60

Accessories

LTC 3364/21 Varifocal Lens IR corrected 1/3-inch, 2.8 – 6 mm, DC-iris, CS-mount F1.4-200, 4-pin	LTC3364/21
LTC 3364/31 Varifocal Lens 1/3-inch, 3.5 – 8 mm, DC-iris, CS-mount F/1.4-200, 4-pin	LTC3364/31
LTC 3364/60 Varifocal Lens 1/3-inch, 3.5 – 8 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3364/60
LTC 3384/21 Zoom Lens 1/3-inch, 6 – 60 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3384/21
TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS

Ordering Information

TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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LTC 0510 Series DinionXF Monochrome Cameras



Features

- ▶ **15-bit DSP technology**
- ▶ **XF-Dynamic**
- ▶ **Bilinx communication**
- ▶ **Default shutter**
- ▶ **Lens wizard**
- ▶ **Auto black**
- ▶ **Video motion detection**
- ▶ **Exceptional IR sensitivity**

The LTC 0510 Series of High Performance 1/2-inch Digital CCD Monochrome Cameras create the best possible image, even under the most difficult light and scene conditions. Based on unique 15-bit digital video processing technology and employing XF-Dynamic, these cameras provide the ultimate sensitivity with extended dynamic range. By employing the best 1/2-inch CCD available, advanced front end processing, combined with the outstanding Dinion DSP, the cameras achieve an astonishing sensitivity, providing better images in low light situations and sharper daytime images.

All Dinion cameras are supplied ready to operate. Simply attach and focus the lens, and connect power to provide optimal pictures under virtually all scene conditions. No tools are required for back focus and power connection. For extra challenging situations where fine tuning or special settings are required, the camera parameters can be individually set using the control buttons on the side of the camera and On-screen Display (OSD). Also, to aid installation, the camera automatically detects the lens type, and using the Lens Wizard ensures accurate (back) focusing for perfectly sharp pictures at all times.

Functions

XF-Dynamic

Extended dynamic range is brought to a new level on the LTC 0510 Series Camera by XF-Dynamic technology. XF-Dynamic automatically processes the highly accurate 15-bit digital signal to optimally capture the detail in both the highlight and lowlight areas of the scene simultaneously, to maximize the information visible in the picture.

Bilinx Technology

The LTC 0510 series cameras incorporate Bilinx. Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch Dinion cameras. With Bilinx technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate setup and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Video Motion Detection

The built-in video motion detector allows you to select up to four fully programmable areas with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected alarms may be displayed in the video signal, the output relay can be closed in addition to alarm message transmission on Bilinx.

Auto Black

The automatic black level feature, enhances contrast by removing veiling glare from the picture or when contrast is reduced by fog or mist.

Default Shutter

When viewing moving objects a fast shutter speed is required. When using a fast shutter speed the lens opening or gain control needs to be increased to maintain the video signal. The camera sensitivity is limited by the fast shutter speed. The default shutter setting of the LTC 0510 offers the best of all worlds, fast shutter speed as long as there is sufficient light, however as the light level falls, when other adjustments have been exhausted, the shutter reverts to the standard setting maintaining the cameras excellent sensitivity.

Back Light Compensation (BLC)

Offering a fully programmable BLC area of interest, and a variable BLC level, the camera can be easily set up for even the most challenging entrance applications.

Lens Wizard

The LTC 0510 series automatically detects the type of lens installed. The Lens Wizard will focus the lens at the maximum lens opening, to ensure that focus is maintained throughout the entire 24-hour day/night cycle. No special tools or filters are required.

Programmable Modes

The camera supports 3 independent operating modes. The 3 modes are preprogrammed for typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

SensUp

By increasing the integration time on the CCD up to 10 times, the effective sensitivity is dramatically enhanced, especially useful where there is no artificial lighting and you rely on the moon, stars and scattered radiation.

Certifications and Approvals

Region	Certification
Europe	CE EC-Declaration of Conformity

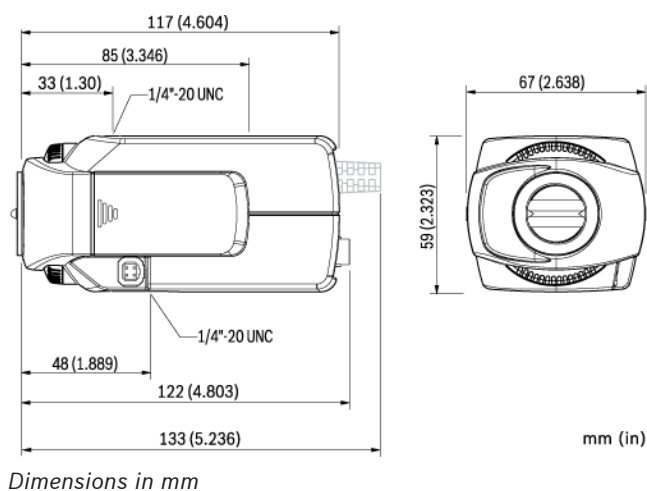
Electromagnetic Compatibility

Emission	EN55022 class B, FCC class B part 15
Immunity	EN50130-4 Alarm Systems, Part 4
Vibration	Camera with 500 gr (1.1 lbs) lens according to IEC60068-2-27

Safety

EN60065 (/10 and /50 models)
UL6500, cUL CAN/CSA E60065-00 (/20 and /60 models)

Installation/Configuration Notes



Parts Included

Quantity	Component
1	LTC 0510 Series Dinion ^{XF} Monochrome Camera
1	Spare male 4-pin lens connector
	Lens not included

Technical Specifications

Electrical

Model No.	Voltage Range	System
LTC 0510/10	12 – 28 VAC 11 – 39 VDC	45 – 65 Hz CCIR
LTC 0510/20	12 – 28 VAC 11 – 39 VDC	45 – 65 Hz EIA
LTC 0510/50	85 – 265 VAC	45 – 65 Hz CCIR
LTC 0510/60	85 – 265 VAC	45 – 65 Hz EIA
Power Consumption	4 W	
Imager	Interline transfer CCD, 1/2-inch image format	

Active Pixels

CCIR Models:	752 H x 582 V
EIA Models:	768 H x 492 V

Sensitivity (3200 k)

Sensitivity (Full video) ¹⁾	0.16 lux (0.016 fc)
Sensitivity 50 IRE ¹⁾	0.032 lux (0.0032 fc)
Minimum Illumination ¹⁾	0.021 lux (0.0021 fc)
Minimum Illumination with Sense Up	0.0021 lux (0.00021 fc)
Horizontal Resolution	570 TVL
Signal-to-Noise-Ratio	> 50 dB
Video Output	1 Vpp, 75 ohm
Synchronization	Internal, line lock or genlock selectable
Electronic Shutter	Auto (1/60 (1/50) to 1/500000), fixed, flickerless, default
Sensitivity Up	Off, automatic continuous up to 10x
Auto Black	On, off selectable
Range	32x dynamic range enhancement
Dynamic Noise Reduction	Auto, off selectable
Contour	Sharpness enhancement level selectable
BLC	Off, area and level selectable
Gain	Auto (maximum level selectable to 28 dB) or fixed level selectable
VMD	4 area, sensitivity selectable
Alarm Output	VMD or Bilinx
Alarm Input(TTL)	Profile switching, +5 V nominal, +40 VDC max
Alarm Output Relay	max. 30 VAC or +40 VDC, max. 0,5 A continuous, 10 VA
External Synchron Input	75 ohm or High Impedance selectable
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with coaxial communication)
Camera ID	16 character editable string, position selectable
Lens Types	Manual, DC- and Video-Iris auto-detect with override.
	DC-iris drive: max 50 mA continuous

Sensitivity (3200 k)

	Video-iris: 11.5 ± 0.5 VDC, max. 50 mA continuous
Remote Control	Bi-directional coaxial communication

1) *F/1.2, 89% reflection, SenseUp off*

Mechanical

Dimensions (H x W x L)	59 x 67 x 122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	450 g (0.99 lbs) without lens
TripodMount	Bottom (isolated) and top 1/4-inch 20 UNC
LensMount	C and CS
Controls	OSD with softkey operation

Environmental

OperatingTemperature	-20°C to +50°C (-4°F to +122°F)
StorageTemperature	-25°C to +70°C (-13°F to +158°F)
OperatingHumidity	20% to 93% RH
StorageHumidity	up to 98% RH

Ordering Information

LTC 0510/10 DinionXF Monochrome Camera 1/2-inch B/W high performance CCIR, 570 TVL, 12-28 VAC/11-39 VDC, 50 Hz	LTC0510/10
LTC 0510/20 DinionXF Monochrome Camera 1/2-inch B/W high performance EIA, 570 TVL, 12-28 VAC/11-39 VDC, 60 Hz	LTC0510/20
LTC 0510/50 DinionXF Monochrome Camera 1/2-inch B/W high performance CCIR, 570 TVL, 85-265 VAC, 50 Hz	LTC0510/50
LTC 0510/60 DinionXF Monochrome Camera 1/2-inch B/W high performance EIA, 570 TVL, 85-265 VAC, 60 Hz	LTC0510/60

Accessories

LTC 3283/20 Zoom Lens 1/2-inch, 8.0 – 48 mm, Video-iris, CS-mount F1.4-360, 4-pin	LTC3283/20
LTC 3274/41 Varifocal Lens 1/2-inch, 7.5 – 75 mm, DC-iris, C-mount, F1.7-360, 4-pin	LTC3274/41
TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334

Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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KBP Series Prepackaged Cameras



Features

- ▶ **General purpose, high performance, and Day/Night cameras**
- ▶ **Network and analog cameras**
- ▶ **Various lens options available**
- ▶ **Bilinx bi-directional communication**
- ▶ **Outdoor IP66 enclosure rating**
- ▶ **Camera and lens are pre-wired into a Bosch housing**
- ▶ **Plug and Play design includes coax and power connectors on rear of the housing**

The KBP Series Prepackaged Cameras are complete surveillance systems that include a camera and lens installed and pre-wired into a Bosch housing plus a color matched wall-mount.

All packages feature Bosch's signature line of Dinion, Dinion^{XF}, or Dinion 2X cameras. Each package offers choices of a varifocal lens to fit a wide range of surveillance applications. Outdoor models are enclosed in a Bosch housing with an IP66 enclosure rating.

The Dinion^{XF} Series offers 15-bit and the Dinion 2x offers 20-bit digital video processing, delivering unsurpassed picture performance under even the most difficult light and scene conditions in conjunctions with XF-Dynamic wide dynamic range, which reveals all of the details in ultra high-contrast scenes.

Dinion IP network cameras are designed to ensure the highest possible image quality at all times, providing DVD-like, high-quality MPEG-4 video, at up to 25 images per second. Dinion IP is a true hybrid camera with both Ethernet and BNC connections for network and analog video.

Each analog camera is equipped with Bosch's innovative Bilinx bi-directional communication for remote programming. Bilinx uses standard video cable to transmit alarm and status messages, providing superior performance and simplified installation.

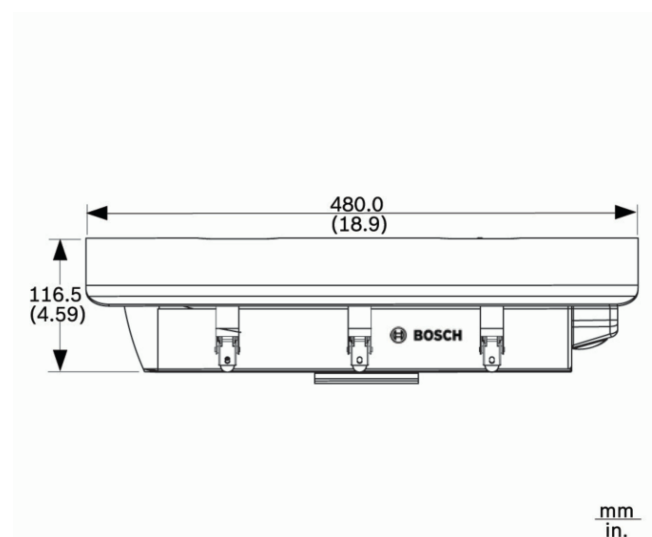
The true advantage of the Bosch prepackaged cameras lie with the plug-and-play design. Installation is quick and easy, since these units include a factory-installed camera and lens with adjusted back-focus - all of which are pre-wired through the housing base. Coax and power connectors are pre-wired at the end of the housing.

Everything about the KBP Series Prepackaged Cameras, from the installer-friendly design, coupled with the Dinion, Dinion^{XF}, and Dinion 2X Series Cameras and a wide range of options make the KBP Series Prepackaged cameras an ideal solution for every surveillance requirement.

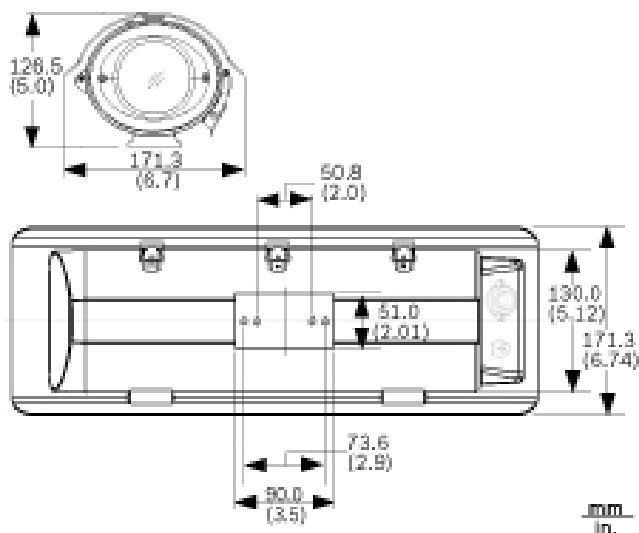
Certifications and Approvals

Region	Certification	
Europe	CE	KBP-335
		KBP-435
		KBP-495
Electromagnetic Compatibility		
EMC Immunity	According EN50130-4	
EMC Emission	According EN505022 class B	
Product Safety	Complies with EN60065	

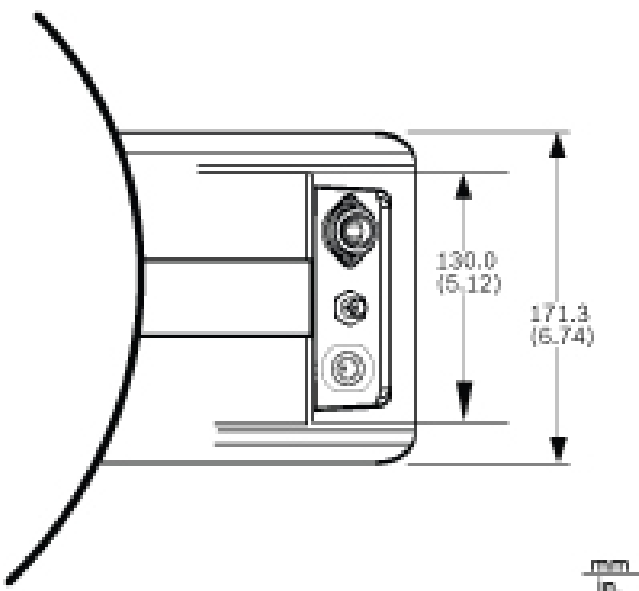
Installation/Configuration Notes



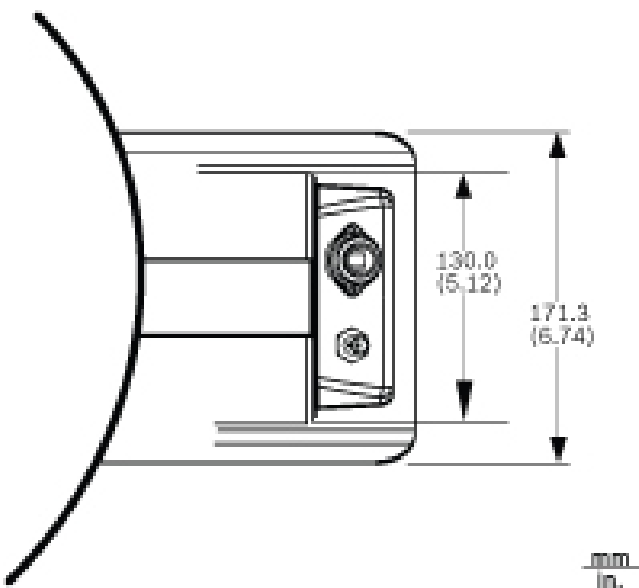
KBP Camera Housing Dimensions – Side View



KBP Camera Housing Dimensions – Bottom View



KBP IP Camera Housing Detail – Bottom View



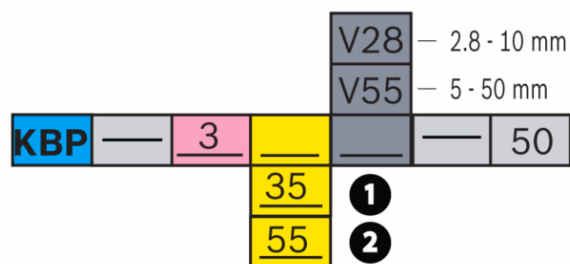
KBP Analog Camera Housing Detail – Bottom View

Ordering Guide

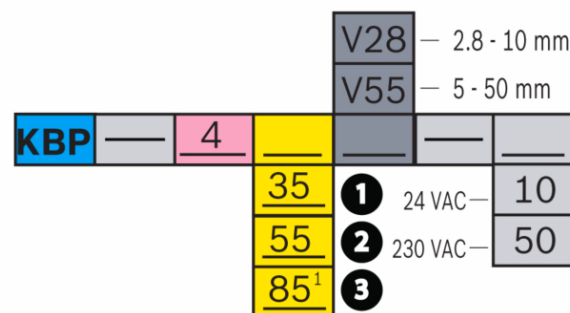
Use the following charts to create your order numbers.

Sample: KBP-485V55-50

KBP	Prepackaged Outdoor Model
485	1/3 in. High Resolution Day/Night
V55	5–50 mm Varifocal Lens
50	230 VAC, 50 Hz

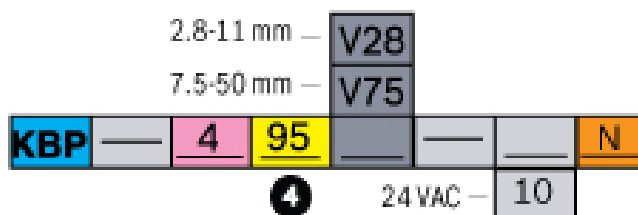


1/3-inch Monochrome Prepackaged Cameras

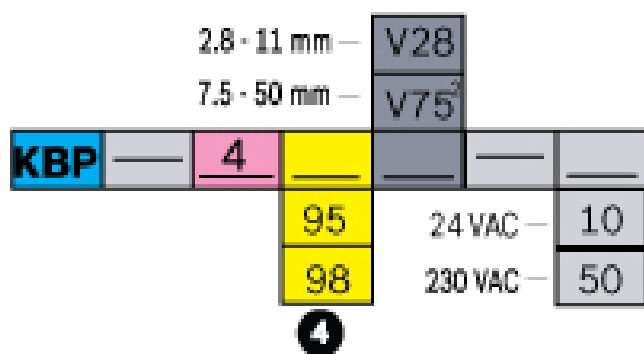


1/3-inch Color Prepackaged Cameras

(1. 485 model only available in 230 VAC, 50 Hz)



1/3-inch Day/Night IP Camera



1/3-inch Day/Night High Resolution Prepackaged Cameras
(2. KBP-495V75 model only available in 230 VAC, 50 Hz)

Number	Reference
1	1/3 in. standard resolution
2	1/3 in. high resolution
3	1/3 in. high resolution, high sensitivity
4	1/3 in. high performance day/night

Technical Specifications

For a detailed list of camera technical specifications, refer to the appropriate datasheet for additional information.

Electrical

Model No.	Camera Type	Lens	Description
KBP-335V28-50	LTC 0335/50	LTC 3364/41	Standard Res. Mono CCIR, 2.8-12 mm
KBP-335V55-50	LTC 0335/50	LTC 3374/21	Standard Res. Mono CCIR, 5-50 mm
KBP-355V28-50	LTC 0355/50	LTC 3364/41	High Res. Mono CCIR, 2.8-12 mm
KBP-355V55-50	LTC 0355/50	LTC 3374/21	High Res. Mono CCIR, 5-50 mm
KBP-435V28-50	LTC 0435/50	LTC 3364/50	Standard Res. Color PAL, 2.8-10 mm
KBP-435V55-50	LTC 0435/50	LTC 3374/50	Standard Res. Color PAL, 5-50 mm
KBP-435V28-10	LTC 0435/10	LTC 3364/50	Standard Res. Color PAL, 2.8-10 mm
KBP-435V55-10	LTC 0435/10	LTC 3374/50	Standard Res. Color PAL, 5-50 mm
KBP-455V28-50	LTC 0455/51	LTC 3364/50	High Res. Color PAL, 2.8-10 mm
KBP-455V55-50	LTC 0455/51	LTC 3374/50	High Res. Color PAL, 5-50 mm
KBP-455V28-10	LTC 0455/11	LTC 3364/50	High Res. Color PAL, 2.8-10 mm
KBP-455V55-10	LTC 0455/11	LTC 3374/50	High Res. Color PAL, 5-50 mm

Model No.	Camera Type	Lens	Description
KBP-485V28-50	LTC 0485/51	LTC 3364/50	High Res. Color PAL, 2.8-10 mm
KBP-485V55-50	LTC 0485/51	LTC 3374/50	High Res. Color PAL, 5-50 mm
KBP-495V28-10	LTC 0498/11	LTC 3664/40	High Res. Day/Night, Color PAL, 2.8-11 mm
KBP-495V28-50	LTC 0498/51	LTC 3664/40	High Res. Day/Night, Color PAL, 2.8-11 mm
KBP-495V75-50	LTC 0498/51	LTC 3674/20	High Res. Day/Night PAL, 7.5-50 mm
KBP-498V28-10	LTC 0498/11	LTC 3664/40	High Res. Day/Night, Color PAL, 2.8-11 mm
KBP-498V28-50	LTC 0498/51	LTC 3664/40	High Res. Day/Night, Color PAL, 2.8-11 mm
KBP-498V75-50	LTC 0498/51	LTC 3674/20	High Res. Day/Night PAL, 7.5-50 mm

Model No.	Camera Type	Lens	Description
KBP-495V28-10N	NWC-0495/11	LTC 3664/40	IP Day/Night, 2.8-11 mm
KBP-495V75-10N	NWC-0495/11	LTC 3674/20	IP Day/Night 7.5-50 mm

Model	Voltage
KBP-335V28-50, KBP-335V55-50, KBP-355V28-50, KBP-355V55-50, KBP-435V28-50, KBP-435V55-50, KBP-455V28-50, KBP-455V55-50, KBP-485V28-50, KBP-485V55-50, KBP-495V28-50, KBP-495V75-50, KBP-498V28-50, KBP-498V75-50	230 VAC, 50 Hz
KBP-435V28-10, KBP-435V55-10, KBP-455V28-10, KBP-455V55-10, KBP-495V28-10, KBP-498V28-10, KBP-495V28-10N, KBP-495V75-10N	24 VAC, 50 Hz

Power Consumption

KBP-xxVxx-50	50 W
KBP-xxVxx-10	45 W
KBP-xxVxx-10N	48 W ¹

Imager Interline transfer CCD 1/3 in. format

1. PoE: IEEE 802.3af compliant (camera only; housing requires 40 W)

Sensitivity (3200 K)	Scene Illumination (Full Video)	Scene Illumination (50 IRE)
Monochrome		
KBP-335 Series	0.90 lux (0.08 fc)	0.22 lux (0.02 fc)
KBP-355 Series	0.65 lux (0.06 fc)	0.16 lux (0.02 fc)
Color		
KBP-435V28	2.16 lux (0.20 fc)	0.54 lux (0.05 fc)
KBP-435V55	3.18 lux (0.29 fc)	1.72 lux (0.16 fc)
KBP-455V28		
Standard	3.60 lux (0.33 fc)	0.90 lux (0.08 fc)
NightSense	1.44 lux (0.13 fc)	0.36 lux (0.03 fc)
KBP-455V55		
Standard	5.31 lux (0.48 fc)	1.33 lux (0.12 fc)
NightSense	2.12 lux (0.19 fc)	0.53 lux (0.05 fc)
Sensitivity (3200 K)	Scene Illumination (Full Video)	Scene Illumination (50 IRE)
Color		
KBP-485V28		
Standard	3.3 lux (0.30 fc)	0.80 lux (0.07 fc)
NightSense	n/a	0.32 lux (0.03 fc)
KBP-485V55		
Standard	4.81 lux (0.44 fc)	1.18 lux (0.11 fc)
NightSense	n/a	0.48 lux (0.04 fc)
Day/Night		
KBP-495 Series (IP and analog models)		
Color	3.26 lux (0.30 fc)	0.80 lux (0.07 fc)
Monochrome	n/a	0.11 lux (0.01 fc)
Sens Up	n/a	0.04 lux (0.003 fc)
Sens Up Monochrome	n/a	0.01 lux (0.001 fc)
KBP-498 Series		
Color	2.4 lux (0.24 fc)	0.59 lux (0.059 fc)
Monochrome	n/a	0.08 lux (0.008 fc)
Color + SensUP 10x	0.24 lux (0.024 fc)	0.059 lux (0.0059 fc)
Monochrome + SensUP 10x	n/a	0.008 lux (0.0008 fc)
Sensitivity Up	Off, automatic continuous up to 10x	
IP “N” Models		
Video Standards	MPEG-4; M-JPEG Video	
Data Rate	9.6 Kbps – 6 Mbps constant & variable	
Video Resolution	704 x 576/480 (4CIF: 25/30 IPS) 704 x 288/240 (2CIF: 25/30 IPS) 352 x 576/480 (Half D1: 25/30 IPS) 352 x 288/240 (CIF: 25/30 IPS) 176 x 144/120 (QCIF: 25/30 IPS)	
Select. Frame Rate	1-25/30 IPS (PAL/NTSC); field / frame based coding	
Network Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, IGMP, ICMP	
Software Update	Flash ROM, remote programmable	
Configuration	Using web browser, built-in Web server interfaces	

Horizontal Resolution**Monochrome**

KBP-335 Series 380 TVL

KBP-355 Series 570 TVL

Color

KBP-435 Series 330 TVL

KBP-455 Series,
KBP-485 Series 540 TVL**Day/Night**KBP-495 Series 540 TVL
KBP-498 Series**IP Day/Night**

KBP-495 Series 540 TVL

Video Output

Composite video 1.0 Vpp, 75 Ohm

ControlBilinx bi-directional coaxial communication (analog cameras)
OSD with softkey operation
Web browser or Configuration Manager (IP cameras)**Lenses**

Type Number	Focal Length	Iris Control Range	Iris Control	IR Corrected
LTC 3364/41	2.8 – 12 mm	F1.4 – 360	DC-iris	n/a
LTC 3374/21	5 – 50 mm	F1.4 – 360	DC-iris	n/a
LTC 3364/50	2.8 – 10 mm	F1.4 – 360	DC-iris	n/a
LTC 3374/50	5 – 50 mm	F1.7 – 360	DC-iris	n/a
LTC 3664/40	2.8 – 11 mm	F1.4 – 360	DC-iris	✓
LTC 3674/20	7.5 – 50 mm	F1.4 – 360	DC-iris	✓

Mechanical**Connectors**

Power Plug

Rear Connectors Type 2x (analog), 3x (IP)
4-pin (power)
BNC (video)
RJ-45 Feed-through (IP)

Power supply input terminals are isolated from video output terminals.

Housing (UHO-HBPS Series)Dimensions 116.5 x 171.3 x 480.0 mm
(4.59 x 6.74 x 18.9 in.)

Weight (approx.) 4.1 kg (9.04 lb)

Construction Aluminum housing casing, neoprene gaskets,
UV-resistant polymer end caps, and all stainless
steel hardware

Finish Grey

Window 3 mm (0.12 in.) Thick UV-stabilized polycarbonate

Mounting Four (4), 8 mm (5/16 in.) diameter fasteners
(not included) are required for mounting**Feed-through Mount (LTC 9215/00)**

Max Load 9 kg (20 lb)

Size	30 cm (12 in.)
Weight	0.4 kg (0.9 lb)
Environmental	
Operating Temperature	
<ul style="list-style-type: none"> KBP-335, KBP-355, KBP-435, KBP-455, KBP-485 Series 	–40°C to 50°C (–40°F to 122°F)
<ul style="list-style-type: none"> KBP-495 Series 	–20°C to 50°C (–4°F to 122°F)
<ul style="list-style-type: none"> KBP-498 Series 	–20°C to 55°C (–4°F to 131°F)
<ul style="list-style-type: none"> KBP-495Vxx-10N Series (IP Cameras) 	–40°C to 46°C (–40°F to 116°F)
Humidity	0% to 93% relative, non-condensing
Enclosure Protection	IP66, NEMA-4X
Delivery	The standard delivery includes: CCTV camera with lens and mounting bracket
Accessories	
Heater/Blower	Included
Sunshield	Included
Wall Mount	Included
Pole Mount Adapter	LTC 9213/01

Ordering Information

KBP-335V28-50 Monochrome, 2.8–12 mm Varifocal Lens, Unity Camera Monochrome CCIR camera, 2.8–12 mm varifocal lens, 380 TVL, 230 VAC, 50 Hz	KBP-335V28-50
KBP-335V55-50 Monochrome, 5–50 mm Varifocal Lens, Unity Camera Monochrome CCIR camera, 5–50 mm varifocal lens, 380 TVL, 230 VAC, 50 Hz	KBP-335V55-50
KBP-355V28-50 Monochrome, 2.8–12 mm Varifocal Lens, Unity Camera Monochrome CCIR camera, 2.8–12 mm varifocal lens, 570 TVL, 230 VAC, 50 Hz	KBP-355V28-50
KBP-355V55-50 Monochrome, 5–50 mm Varifocal Lens, Unity Camera Monochrome CCIR camera, 5–50 mm varifocal lens, 570 TVL, 230 VAC, 50 Hz	KBP-355V55-50
KBP-435V28-10 Color, 2.8–10 mm Varifocal Lens, Unity Camera Color PAL camera, 2.8–10 mm varifocal lens, 330 TVL, 24 VAC, 50 Hz	KBP-435V28-10
KBP-435V28-50 Color, 2.8–10 mm Varifocal Lens, Unity Camera Color PAL camera, 2.8–10 mm varifocal lens, 330 TVL, 230 VAC, 50 Hz	KBP-435V28-50
KBP-435V55-10 Color, 5–50 mm Varifocal Lens, Unity Camera Color PAL camera, 5–50 mm varifocal lens, 330 TVL, 24 VAC, 50 Hz	KBP-435V55-10
KBP-435V55-50 Color, 5–50 mm Varifocal Lens, Unity Camera Color PAL camera, 5–50 mm varifocal lens, 330 TVL, 230 VAC, 50 Hz	KBP-435V55-50

Ordering Information

KBP-455V28-10 Color, 2.8–10 mm Varifocal Lens, Unity Camera Color PAL camera, 2.8–10 mm varifocal lens, 540 TVL, 24 VAC, 50 Hz	KBP-455V28-10
KBP-455V28-50 Color, 2.8–10 mm Varifocal Lens, Unity Camera Color PAL camera, 2.8–10 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-455V28-50
KBP-455V55-10 Color, 5–50 mm Varifocal Lens, Unity Camera Color PAL camera, 5–50 mm varifocal lens, 540 TVL, 24 VAC, 50 Hz	KBP-455V55-10
KBP-455V55-50 Color, 5–50 mm Varifocal Lens, Unity Camera Color PAL camera, 5–50 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-455V55-50
KBP-485V28-50 Color, 2.8–10 mm Varifocal Lens, Unity Camera Color PAL camera, 2.8–10 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-485V28-50
KBP-485V55-50 Color, 5–50 mm Varifocal Lens, Unity Camera Color PAL camera, 5–50 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-485V55-50
KBP-495V28-50 Day/Night, 2.8–11 mm Varifocal Lens, Unity Camera Day/Night PAL camera, 2.8–11 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-495V28-50
KBP-495V75-50 Day/Night, 7.5–50 mm Varifocal Lens, Unity Camera Day/Night PAL camera, 7.5–50 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-495V75-50
KBP-495V28-10N IP Day/Night, 2.8–11 mm Varifocal Lens, Unity Camera IP Day/Night camera, 2.8–11 mm Varifocal lens, 24 VAC, 50 Hz	KBP-495V28-10N
KBP-495V75-10N IP Day/Night, 7.5–50 mm Varifocal Lens, Unity Camera IP Day/Night camera, 7.5–50 mm Varifocal lens, 24 VAC, 50 Hz	KBP-495V75-10N
KBP-498V28-10 Day/Night 2.8–11 mm Varifocal Lens, Unity Camera Day/Night PAL camera, 2.8–11 mm varifocal lens, 540 TVL, 24 VAC, 50 Hz	KBP-498V28-10
KBP-498V28-50 Day/Night, 2.8–11 mm Varifocal Lens, Unity Camera Day/Night PAL camera, 2.8–11 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-498V28-50
KBP-498V75-50 Day/Night, 7.5–50 mm Varifocal Lens, Unity Camera Day/Night PAL camera, 7.5–50 mm varifocal lens, 540 TVL, 230 VAC, 50 Hz	KBP-498V75-50

KBC Series Prepackaged Cameras



Features

- ▶ **Pre-assembled units with camera, varifocal lens and bracket included**
- ▶ **Reduces installation time to the absolute minimum**
- ▶ **Range of color, monochrome, and day/night units**
- ▶ **Choice of analog or network cameras**
- ▶ **Varifocal lenses for on-site adjustment of field-of-view**
- ▶ **Bilinx bi-directional communication**

The KBC Series Indoor Camera kits provide the most economical package available for indoor applications. These units reduce the required installation time to the absolute minimum. Only the power supply and video cables need to be connected to obtain superior picture performance in virtually all indoor applications. A wall bracket is also included in the package.

The Indoor Camera kits are based on the Dinion Series of cameras. The Dinion camera range covers standard and high resolution as well as monochrome and color versions. In addition, these camera kits include a pre-assembled varifocal lens which allows the field-of-view to be adjusted on site, allowing optimum area coverage.

Each camera is equipped with Bosch's innovative Bilinx bi-directional communication for remote programming. Bilinx uses standard video cable to transmit alarm and status messages, providing superior performance and simplified installation.

The camera kit can be used in a large variety of places such as city centers, petrol stations, industrial environments, and travel and transport areas, in fact any general indoor use.

Certifications and Approvals

Region	Certification	
Europe	CE	KBC-335
Electromagnetic Compatibility		
EMC Immunity	According EN50130-4	
EMC Emission	According EN505022 class B	
Product Safety	Complies with EN60065 KBC-455V28-10N EN60950	

Parts Included

Quantity	Components
1	CCTV camera with lens, mounted and adjusted
1	Mounting bracket

Technical Specifications

For a detailed list of camera technical specifications, refer to the appropriate datasheet for additional information.

Electrical

Model No.	Camera Type	Lens	Description
KBC-335V28-50	LTC 0335/50	LTC 3364/50	Standard Res. Mono CCIR, 2.8-10 mm
KBC-355V28-50	LTC 0355/50	LTC 3364/50	High Res. Mono CCIR, 2.8-10 mm
KBC-435V28-50	LTC 0435/50	LTC 3364/50	Standard Res. Color PAL, 2.8-10 mm
KBC-455V28-50	LTC 0455/51	LTC 3364/50	High Res. Color PAL, 2.8-10 mm
KBC-440V38-50	LTC 0440/50	LTC 3364/60	Color PAL, 3.5-8 mm
KBC-495V28-50	LTC 0495/51	LTC 3664/40	High Res. Day/Night, Color PAL, 2.8-12 mm
KBC-455V28-10N	NWC-0455-10P	LTC 3364/50	High Res. IP Color PAL, 2.8-10 mm

Model	Voltage
KBC-335V28-50, KBC-355V28-50, KBC-435V28-50, KBC-455V28-50, KBC-440V38-50, KBC-495V28-50	110-230 VAC
KBC-455V28-10N	24 VAC, 12 VDC, and PoE

Power Consumption

Most Models	4 W, excluding lens
KBC-455V28-10N	750 mA

Imager Interline transfer CCD, 1/3-inch image format

Sensitivity	Scene Illumination (Full Video)	Scene Illumination (50 IRE)
KBC-335V28-50	0.90 lux (0.08 fc)	0.22 lux (0.02 fc)
KBC-355V28-50	0.65 lux (0.06 fc)	0.16 lux (0.02 fc)
KBC-435V28-50	2.16 lux (0.20 fc)	0.54 lux (0.05 fc)
KBC-455V28-50		
Standard	3.60 lux (0.33 fc)	0.90 lux (0.08 fc)
NightSense	1.44 lux (0.13 fc)	0.36 lux (0.03 fc)
KBC-440V38-50	4.76 (0.44 fc)	1.17 (0.11 fc)
KBC-495V28-50		
Color	3.26 lux (0.30 fc)	0.80 lux (0.07 fc)
Monochrome	n/a	0.11 lux (0.01 fc)
Sens Up	n/a	0.04 lux (0.003 fc)
Monochrome + Sens Up	n/a	0.01 lux (0.001 fc)
KBC-455V28-10N		
Standard	0.88 lux (0.08 fc)	0.40 lux (0.04 fc)
NightSense	0.35 lux (0.03 fc)	0.16 lux (0.02 fc)

Horizontal Resolution

KBC-335V28-50	380 TVL
KBC-355V28-50	570 TVL
KBC-435V28-50	330 TVL
KBC-455V28-50	540 TVL
KBC-440V38-50	480 TVL
KBC-495V28-50	540 TVL
KBC-455V28-10N	540 TVL

Output (Analog Models)

Composite video 1.0 Vpp, 75 Ohm

Output (Digital Model)

Video Standards	MPEG-4; M-JPEG
GOP Structure	I, IP
Data Rate	9.6 Kbps to 6 Mbps (const. and variable)

Control (Analog Models)

Bilinx bi-directional coaxial communication
OSD with softkey operation

Control (Digital Model)

Web browser or Configuration Manger

Lenses

	LTC 3364/50	LTC 3364/60	LTC 3664/40
Focal Length	2.8 – 10 mm	3.5 – 8 mm	2.8 – 12 mm
Iris Control Range	F1.4 – 360	F1.4 – 360	F1.4 – 360
Iris Control	DC-iris	DC-iris	DC-iris
IR Corrected	n/a	n/a	√

Mechanical**Connectors**

Power	Plug
Video	BNC –connector, RJ-45 ethernet (KBC-455V28-10N)

**Camera Dimensions
(H x W x L)**

Most Models	58 x 67 x 122 mm (2.28 x 2.64 x 4.80 in.)
KBC-455V28-10N Only	58 x 67 x 123 mm (2.28 x 2.64 x 4.84 in.)
Weight	0.4 kg (0.88 lb) approx.
Mounting Bracket	MTC-G1001

Environmental**Temperature Range**

Operating Temperature	
KBC-335V28-50	-20°C to 50°C (-4°F to 122°F)
KBC-355V28-50	
KBC-435V28-50	
KBC-455V28-50	
KBC-440V38-50	
KBC-495V28-50	-0°C to 40°C (-32°F to 104°F)
KBC-455V28-10N	

Storage Temperature

KBC-335V28-50	-25°C to 70°C (-13°F to 158°F)
KBC-355V28-50	
KBC-435V28-50	
KBC-455V28-50	
KBC-440V38-50	
KBC-495V28-50	-25°C to 70°C (-13°F to 158°F)
KBC-455V28-10N	

Humidity

KBC-335V28-50	5-93% Relative (non-condensing)
KBC-355V28-50	
KBC-435V28-50	
KBC-455V28-50	
KBC-440V38-50	
KBC-495V28-50	20-93% Relative (non-condensing)
KBC-455V28-10N	20-80% Relative (non-condensing)

Delivery

The standard delivery includes: CCTV camera with lens and mounting bracket

Ordering Information

KBC-335V28-50 Monochrome CCIR camera, 2.8–10 mm vari-focal lens, 380 TVL, 230 VAC, 50 Hz	KBC-335V28-50
KBC-355V28-50 Monochrome CCIR camera, 2.8–10 mm vari-focal lens, 570 TVL, 230 VAC, 50 Hz	KBC-355V28-50
KBC-435V28-50 Color PAL camera, 2.8–10 mm varifocal lens, 330 TVL, 230 VAC, 50 Hz	KBC-435V28-50
KBC-440V38-50 Color PAL camera, 3.5–8 mm varifocal lens, 480 TVL, 230 VAC, 50 Hz	KBC-440V38-50

Ordering Information

KBC-455V28-10N

IP color PAL camera, 2.8–10 mm varifocal
lens, 540 TVL, 24 VAC, 50 Hz

KBC-455V28-10N**KBC-455V28-50**

Color PAL camera, 2.8–10 mm varifocal
lens, 540 TVL, 230 VAC, 50 Hz

KBC-455V28-50**KBC-495V28-50**

Day/Night PAL camera, 2.8–12 mm varifocal
lens, 540 TVL, 230 VAC, 50 Hz

KBC-495V28-50**KBC-498V28-50**

Day/Night PAL camera, 2.8–12 mm varifocal
lens, 540 TVL, 230 VAC, 50 Hz

KBC-495V28-50

EX30-IP Infrared Imager



Features

- ▶ **Intelligent Video Analysis (IVA)**
- ▶ **Black Diamond Infrared Technology**
- ▶ **Rugged All-Weather Construction**
- ▶ **High Performance Video Encoder**
- ▶ **Precision Engineered Performance Optics**

The EX30 is a single-sensor infrared imager for outdoor day/night surveillance applications. The EX30 features a 5-50 mm lens, the longest identification range of the infrared imagers at telephoto (150 ft), Black Diamond infrared illumination and a powerful processor for Intelligent Video Analysis (IVA). The EX30 also provides detection-level night-time imaging up to 330 ft, resulting in outstanding versatility for critical 24/7 surveillance applications.

The EX30-IP Infrared Imager includes a 5-50mm IR-corrected lens and Black Diamond infrared illumination, calibrated to provide industry leading night vision imaging.

The EX30 provides outstanding day and night imaging performance with lower bandwidth network impact than standard IP cameras. Ideal for critical applications such as force protection, perimeter surveillance and public area surveillance.

Functions

Intelligent Video Analysis (IVA)

- On-board video content analysis monitors scene activity and flags user-defined events such as alarms (additional license required)

Black Diamond Infrared Technology

- Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds

- Extended range infrared to deliver detection-level imaging at 100 m (330 ft)
- Reduces image noise and enables better compression, reducing bit rates and enhancing network stability
- Enables effective night-time performance of video analytics

Rugged All-Weather Construction

- Weather-sealed housing design to NEMA 4X
- Cable-managed wall bracket
- Sliding optical chassis for easy-optical adjustments

High Performance Video Encoder

- MPEG-4 and MJPEG at 30 fps, full resolution
- Tri-stream video allows for simultaneous high resolution viewing with high efficiency storage (or vice versa)
- Supported by a wide range of VMS and NVR solutions

Precision Engineered Performance Optics

- 540 TVL hi-resolution day/night CCD for vivid daytime color and outstanding night vision
- 5-50 mm infrared-corrected lens delivers a wide surveillance range from 45 m (150 ft) to 100 m (330 ft) for maximum imaging versatility
- Infrared-corrected lens eliminates focus shift and infrared bleed

Parameters at 850 nm

Detection	100 m (330 ft)
Classification	90 m (300 ft)
Recognition	75 m (250 ft)
Identification	45 m (150 ft)

Technical Specifications

Video

	EX30 IP Infrared Imager
Sensor	Hi-resolution day/night CCD
Effective Pixels (H x V)	NTSC: 768 x 494
Effective Pixels (H x V)	PAL: 752 x 582
Resolution	540 TVL color / 540 TVL monochrome
S/N Ratio	Greater than 48 dB (AGC off)
Daytime Sensitivity	0.02 Lux at F1.4
Night time Sensitivity	0 Lux - works in total darkness
Lens	IR corrected 5 to 50 mm varifocal auto-iris, DC drive
Gamma	0.45
Video Output	1 Vpp, 75 ohm
Day-Night Switching	Photocell-controlled, automatic
Photocell	Automatic, sensitivity adjustable
LEDs	Black Diamond Infrared, intensity adjustable
Wavelength	850 nm (semi-covert) or *940 nm (covert)

**(For 940 nm, 50-60% distance loss from stated distances at 850 nm)*

Night Vision Ranges

Detection	100 m (330 ft)
Classification	90 m (300 ft)
Recognition	75 m (250 ft)
Identification	45 m (150 ft)

Interfaces

Ethernet	10/100 Base-T RJ45
Analog	PAL or NTSC BNC

IP

Protocols	Telnet, RTP, HTTP(S), ARP, TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x
Compression	MPEG-4 SP and MJPEG, up to 30 frames per second, tri-stream selectable
Frame Rate	1-30 FPS programmable (full motion)
Bandwidth	Configurable from 9.6 Kbps to 6 Mbps

Resolution and Frame Rates	PAL (H x V)	NTSC (H x V)
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4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Electrical

Voltage Supply	12 to 24 VDC or VAC
Power Consumption	36 W max

Mechanical

Construction	Robust aluminum casting
Finish	Baked enamel finish, black standard
Bracket	Cable managed wall bracket included
Dimensions	131 x 139 x 207 mm (H x W x D)
	5.2 x 5.5 x 8.2 in (H x W x D)
Weight	1.4 kg (3.4 lb)

Environmental

Operation Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Environment	NEMA 4X compliant

Ordering Information

NEI-308V05-21B IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 5-50 mm, black, NTSC	NEI-308V05-21B
NEI-308V05-11B IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 5-50 mm, black, PAL	NEI-308V05-11B
NEI-308V05-21W IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 5-50 mm, white, NTSC	NEI-308V05-21W
NEI-308V05-11W IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 5-50 mm, white, PAL	NEI-308V05-11W
NEI-309V05-21B IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 5-50 mm, black, NTSC	NEI-309V05-21B
NEI-309V05-11B IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 5-50 mm, black, PAL	NEI-309V05-11B
NEI-309V05-21W IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 5-50 mm, white, NTSC	NEI-309V05-21W
NEI-309V05-11W IP Infrared Imager IP IR Imager, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 5-50 mm, white, PAL	NEI-309V05-11W
Accessories	
EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.015W Pole Mount Adaptor Bracket Pole Mount Adaptor Bracket, white	EXMB.015W
EXSH.01B Sunhood Sunhood, black	EXSH01B
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
EXSH.01W Sunhood Sunhood, white	EXSH01W

EX30 Infrared Imager



Features

- ▶ **Daytime color, active-infrared night vision**
- ▶ **Black Diamond infrared technology**
- ▶ **Powerful, precision engineered optics**
- ▶ **Detection-level imaging to 100 m (330 ft)**
- ▶ **Packed with installer-friendly enhancements**

The EX30 is a versatile single-sensor Infrared Imager delivering outstanding color performance by day and award-winning night vision for critical 24/7 surveillance applications.

Building from its patented Integrated Day-Night (IDN) design, the new EX30 Infrared Imager combines performance optics - including a 5 to 50 mm IR-corrected lens - and ground-breaking Black Diamond technology for the most advanced level of night vision performance available today.

Capable of fulfilling all four DCRI surveillance levels (Detection, Classification, Recognition and Identification), the EX30 provides effective 24/7 imaging for critical applications including perimeter surveillance, high value asset protection and force protection.

Functions

Black Diamond Night Vision

- Award-winning Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds
- Detection-level imaging at 100 m (330 ft)
- Enables effective 24/7 operation across a wide variety of surveillance applications

Precision Engineered Performance Optics

- 540 TVL Hi-resolution day/night CCD for vivid daytime color and outstanding night vision performance

- 5 to 50 mm IR-corrected lens delivers a wide surveillance range from 45 m (150 ft) to 100 m (330 ft) for maximum imaging versatility
- IR-corrected lens eliminates focus shift and IR bleed

Installer-Friendly Features

- Sliding optical chassis for fast, easy optical adjustments
- 5 to 50 mm varifocal, auto-iris lens
- NEMA4X weather-sealed housing
- Adjustable infrared intensity and photocell sensitivity
- Cable-managed wall bracket

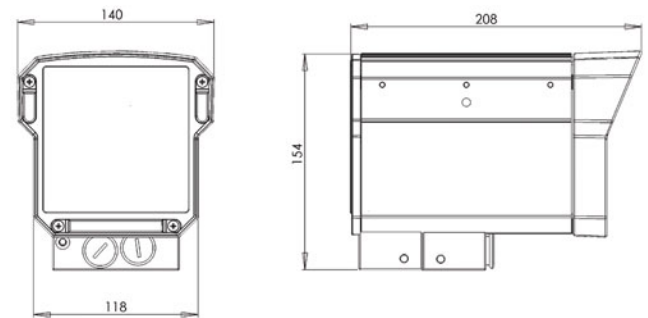
DCRI Performance

Our Infrared Imagers are tested for performance to DCRI surveillance levels. Conformance to these criteria ensure that our cameras deliver outstanding video at any one of the four levels of surveillance shown below, assuring security specifiers the broadest range of capability.

Parameters at 850 nm

Detection	100 m (330 ft)
Classification	90 m (300 ft)
Recognition	75 m (250 ft)
Identification	45 m (150 ft)

Installation/Configuration Notes



Technical Specifications

Video

	EX30 Infrared Imager
Sensor	1/3" Extended Hi-Resolution Day/Night CCD
Effective Pixels (H x V)	NTSC: 768 x 494
Effective Pixels (H x V)	PAL: 752 x 582
Resolution	540 TVL color / 540 TVL monochrome
S/N Ratio	Greater than 48 dB (AGC off)
Daytime Sensitivity	0.02 lux at F1.4
Night time Sensitivity	0.0 lux with infrared (B/W)
Lens	IR corrected 5 to 50 mm varifocal auto-iris, DC drive
Gamma	0.45
Video Output	1 Vpp, 75 ohm
Day-Night Switching	Photocell-controlled, automatic
Photocell	Automatic, sensitivity adjustable

Controls	OSD with joystick operation
LEDs	Black Diamond Infrared, intensity adjustable
Wavelength	850 nm (semi-covert) or *940 nm (covert)
Electrical	
Voltage Supply	12 to 24 VDC or VAC
Power Consumption	36 W max
Mechanical	
Construction	Robust aluminum casting
Finish	Baked enamel finish, black standard
Bracket	Cable managed wall bracket included
Dimensions	131 x 139 x 207 mm (H x W x D)
	5.2 x 5.5 x 8.2 in (H x W x D)
Weight	1.4 kg (3.4 lb)
Environmental	
Operation Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Environment	NEMA 4X compliant
Note	*For 940 nm, 50-60% distance loss from stated distances at 850 nm.

Ordering Information

EX30MNX8V0550B-N Infrared Imager Day/Night with mech filter, VA5-50 mm, 850 nm BlackDiamond 40 or 80 deg, black, NTSC	EX30MNX8V0550B -N
EX30MNX8V0550B-P Infrared Imager Day/Night with mech filter, VA5-50 mm, 850 nm BlackDiamond 40 or 80 deg, black, PAL	EX30MNX8V0550B -P
EX30MNX9V0550B-N Infrared Imager Day/Night with mech filter, VA5-50 mm, 940 nm BlackDiamond 40 or 80 deg, black, NTSC	EX30MNX9V0550B -N
EX30MNX9V0550B-P Infrared Imager Day/Night with mech filter, VA5-50 mm, 940 nm BlackDiamond 40 to 80 deg, black, PAL	EX30MNX9V0550B -P
EX30MNX8V0550W-N Infrared Imager Day/Night with mech filter, VA5-50 mm, 850 nm BlackDiamond, white, NTSC	EX30MNX8V0550 W-N
EX30MNX8V0550W-P Infrared Imager Day/Night with mech filter, VA5-50 mm, 850 nm BlackDiamond, white, PAL	EX30MNX8V0550 W-P
EX30MNX9V0550W-N Infrared Imager Day/Night with mech filter, VA5-50 mm, 940 nm BlackDiamond, white, NTSC	EX30MNX9V0550 W-N
EX30MNX9V0550W-P Infrared Imager Day/Night with mech filter, VA5-50 mm, 940 nm BlackDiamond, white, PAL	EX30MNX9V0550 W-P

Ordering Information

Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.015W Pole Mount Adapter Pole Mount Adapter, White	EXMB.015w
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
EXSH.01B Sunhood Sunhood, black	EXSH01B
EXSH.01W Sunhood Sunhood, white	EXSH01W

EX82-IP Infrared Imager



Features

- ▶ **Intelligent Video Analysis (IVA)**
- ▶ **Black Diamond High-Fidelity Infrared Technology**
- ▶ **Precision Engineered Performance Optics**
- ▶ **High Performance Video Encoder**
- ▶ **Rugged All-Weather Construction**

The EX82-IP is a dual-sensor infrared imager designed for outstanding daytime imaging and absolute performance in night-time imaging. Featuring a powerful processor for video analysis using Intelligent Video Analysis (IVA) and IP infrared imaging design, the EX82-IP provides detection-level night-time imaging up to 250 ft for critical 24/7 surveillance applications.

For exceptional performance both day and night, the EX82-IP infrared imager incorporates dual-sensor design and combines it with Black Diamond infrared illumination technology. Together, they are jointly calibrated to provide High-Fidelity night vision imaging.

The EX82-IP provides outstanding day and night imaging performance with lower bandwidth network impact than standard IP cameras for critical applications such as force protection, perimeter surveillance and public area surveillance.

Functions

Intelligent Video Analysis (IVA)

- On-board video content analysis monitors scene activity and flags user-defined events such as alarms (additional license required)

Black Diamond High-Fidelity Infrared Technology

- Award-winning Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds

- Detection-level imaging at 75 m (250 ft)
- Reduces image noise and enables better compression, reducing bit rates and enhancing network stability
- Enables effective night-time performance of video analytics

Precision Engineered Performance Optics

- 500 TVL Hi-resolution Color CCD for outstanding daytime color
- 540 TVL Hi-resolution Monochrome CCD for award-winning night vision
- Completely eliminates focus shift, IR bleed and other image distortions typical in conventional night vision cameras

High Performance Video Encoder

- MPEG-4 and MJPEG at 30 fps, full resolution
- Tri-stream video allows for simultaneous high resolution viewing with high efficiency storage (or vice versa)
- Supported by a wide range of VMS and NVR solutions

Rugged All-Weather Construction

- Weather-sealed housing design to NEMA 4X
- Cable-managed wall bracket
- Sliding optical chassis for easy-optical adjustments

Detection	75 m (250 ft)
Classification	60 m (200 ft)
Recognition	45 m (150 ft)
Identification	25 m (75 ft)

Technical Specifications

Video

Sensor	C7 Hi-resolution Color CCD	SX7 Hi-resolution monochrome CCD
Effective Pixels (H x V)	NTSC: 768 x 494 PAL: 752 x 582	NTSC: 542 x 492 PAL: 542 x 582
Resolution	540 TVL	540 TVL
S/N Ratio	Greater than 48 dB	Greater than 50 dB
Daytime Sensitivity	2.7 lux at F1.4	0.01 lux at F1.2 (AGC on)
Night-time Sensitivity	0.0 lux (works in total darkness)	
Lens Options	4 to 9 mm or 9 to 22 mm varifocal auto-iris	
Gamma	0.45	
Video Output	1 Vpp, 75 ohm	
Day-Night Switching	Photocell-controlled, automatic	
Photocell	Automatic, sensitivity adjustable	
LEDs	Black Diamond High-Fidelity Infrared, intensity adjustable	
Wavelength	850 nm (semi-covert) or 940 nm* (covert)	

Night Vision Ranges

Detection	70 m (250 ft)
Classification	65 m (200 ft)
Recognition	45 m (150 ft)
Identification	25 m (75 ft)

Interfaces

Ethernet	10/100 Base-T RJ45
Analog	PAL or NTSC BNC

IP

Protocols	Telnet, RTP, HTTP(S), ARP, TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x
Compression	MPEG-4 SP and MJPEG, up to 30 frames per second, tri-stream selectable
Frame Rate	1 to 30 FPS programmable (full motion)
Bandwidth	Configurable from 9.6 Kbps to 6 Mbps

Resolution and Frame Rates

	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Electrical

Voltage Supply	12 VDC or 24 VAC
Power Consumption	36 W max

Mechanical

Construction	Robust aluminum casting
Finish	Baked enamel finish, black standard
Bracket	Cable managed wall bracket included
Dimension (H x W x D)	131 x 139 x 207 mm (5.2 x 5.5 x 8.2 in)
Weight	1.4 kg (3.4 lb)

Environmental

Operation Temperature Range	-50 °C to +50 °C (-58 °F to 122 °F)
Environment	NEMA 4X compliant

Note	*For 940 nm, 50-60% distance loss from stated distances at 850 nm
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Ordering Information

NEI-828V04-21B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 4-9 mm, black, NTSC	NEI-828V04-21B
NEI-828V04-11B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 4-9 mm, black, PAL	NEI-828V04-11B
NEI-829V04-21B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 4-9 mm, black, NTSC	NEI-829V04-21B
NEI-829V04-11B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 4-9 mm, black, PAL	NEI-829V04-11B
NEI-828V09-21B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 9-22 mm, black, NTSC	NEI-828V09-21B
NEI-828V09-11B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 9-22 mm, black, PAL	NEI-828V09-11B
NEI-829V09-21B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 9-22 mm, black, NTSC	NEI-829V09-21B
NEI-829V09-11B IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 9-22 mm, black, PAL	NEI-829V09-11B
NEI-828V04-21W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 4-9 mm, white, NTSC	NEI-828V04-21W
NEI-828V04-11W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 4-9 mm, white, PAL	NEI-828V04-11W
NEI-829V04-21W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 4-9 mm, white, NTSC	NEI-829V04-21W
NEI-829V04-11W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 4-9 mm, white, PAL	NEI-829V04-11W
NEI-828V09-21W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 9-22 mm, white, NTSC	NEI-828V09-21W
NEI-828V09-11W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 850 nm IR, 9-22 mm, white, PAL	NEI-828V09-11W
NEI-829V09-21W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 9-22 mm, white, NTSC	NEI-829V09-21W

Ordering Information

NEI-829V09-11W IP Infrared Imager IP IR Imager, day/night dual sensor, 500/540 TVL, 940 nm IR, 9-22 mm, white, PAL	NEI-829V09-11W
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Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
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EXMB.015W Pole Mount Adapter Bracket Pole Mount Adapter Bracket, white	EXMB.015W
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EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
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EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
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EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
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EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
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EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
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EXSH.01B Sunhood Sunhood, black	EXSH01B
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EXSH.01W Sunhood Sunhood, white	EXSH01W
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EX82 Infrared Imager



Features

- ▶ **Daytime color, active-infrared night vision**
- ▶ **No focus shift, IR bleed or other distortions**
- ▶ **Black Diamond infrared technology**
- ▶ **Detection-level imaging to 75 m (250 ft)**
- ▶ **Packed with installer-friendly enhancements**

The EX82 is a dual-sensor, dual-lens, Infrared Imager that delivers outstanding color performance by day and award-winning night vision for critical 24/7 surveillance applications.

Building from its patented Integrated Day/Night design, the EX82 Infrared Imager combines performance optics and ground-breaking Black Diamond technology for High-Fidelity night vision imaging, the most advanced level of night vision performance available today.

Capable of fulfilling all four DCRI surveillance levels (Detection, Classification, Recognition and Identification), the EX82 provides effective 24/7 imaging for critical applications including transit, defense, critical infrastructure and port security.

Functions

Black Diamond High Fidelity Infrared Technology

- Award-winning Black Diamond technology eliminates hotspot foregrounds and under-exposed backgrounds
- Detection-level imaging at 75 m (246 ft)
- Effective 24/7 surveillance for critical applications

Patented Dual Sensor Integrated Day Night Design

- 500 TVL Hi-resolution Color CCD for outstanding daytime color
- 540 TVL Hi-resolution Monochrome CCD for award-winning night vision

- Completely eliminates focus shift, IR bleed and other image distortions typical in conventional night vision cameras

Installer-Friendly Features

- Sliding optical chassis for fast, easy-access lens and CCD adjustments
- Captive screws
- 4 to 9 mm or 9 to 22 mm varifocal, auto-iris lenses
- Weather-sealed housing design to NEMA 4X
- Adjustable infrared intensity and photocell sensitivity
- Cable-managed wall bracket, pan-tilt adjustable

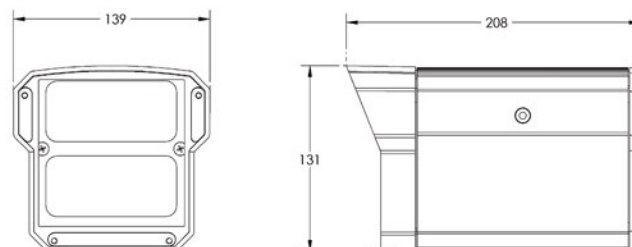
DCRI Performance

Our CCTV Infrared Imagers are tested for performance to DCRI surveillance levels. Conformance to these criteria ensure that our cameras deliver outstanding video at any one of the four levels of surveillance shown below, assuring security specifiers the broadest range of capability.

Parameters at 850 nm

Detection	75 m (250 ft)
Classification	60 m (200 ft)
Recognition	45 m (150 ft)
Identification	25 m (75 ft)

Installation/Configuration Notes



Technical Specifications

Video

Sensor	C7 Hi-resolution Color CCD	SX7 Hi-resolution monochrome CCD
Effective Pixels	NTSC: 768 x 494 (HxV) PAL: 752 x 582 (HxV)	NTSC: 542 x 492 (HxV) PAL: 542 x 582 (HxV)
Resolution	500 TVL	540 TVL
S/N Ratio	Greater than 48 dB	Greater than 48 dB
Daytime Sensitivity	2.7 lux at F1.4	0.01 lux at F1.2 (AGC on)
Night-time Sensitivity	0.0 lux (works in total darkness)	
Lens	Varifocal 4 to 9 mm or 9 to 22 mm auto-iris lens	
Gamma	0.45	
Video Output	1Vpp, 75 ohm	
Day-Night Switching	Photocell-controlled, automatic	
Photocell	Automatic, sensitivity adjustable	

LEDs	Black Diamond High-Fidelity Infrared, intensity adjustable
Wavelength	850 nm (semi-covert) or 940 nm (covert)*
Electrical	
Voltage Supply	12 VDC or 24 VAC
Power Consumption	36 W max
Mechanical	
Construction	Robust aluminium casting
Finish	Baked enamel finish, black standard
Bracket	Cable managed wall bracket included
Dimension	131 x 139 x 207 mm (H x W x D) 5.2 x 5.5 x 8.2 in (H x W x D)
Weight	1.4 kg (3.4 lb)
Environmental	
Operation Temperature Range	-50 °C to +50 °C (-58 °F to 122 °F)
Environment	NEMA 4X compliant
Note	* For 940 nm, 50-60% distance loss from stated distances at 850 nm

Ordering Information	
EX82D8V0409B-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, black, NTSC	EX82D8V0409B-N
EX82D8V0409B-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, black, PAL	EX82D8V0409B-P
EX82D9V0409B-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, black, NTSC	EX82D9V0409B-N
EX82D9V0409B-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, black, PAL	EX82D9V0409B-P
EX82D8V0922B-N Infrared Imager Day/Night dual sensor, VA9-22 mm, 850 nm BlackDiamond, black, NTSC	EX82D8V0922B-N
EX82D8V0922B-P Infrared Imager Day/Night dual sensor, VA9-22 mm, 850 nm BlackDiamond, black, PAL	EX82D8V0922B-P
EX82D9V0922B-N Infrared Imager Day/Night dual sensor, VA9-22 mm, 940 nm BlackDiamond, black, NTSC	EX82D9V0922B-N
EX82D9V0922B-P Infrared Imager Day/Night dual sensor, VA9-22 mm, 940 nm BlackDiamond, black, PAL	EX82D9V0922B-P
EX82D8V0409W-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, white, NTSC	EX82D8V0409W-N
EX82D8V0409W-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm, BlackDiamond, white, PAL	EX82D8V0409W-P

Ordering Information

EX82D9V0409W-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, white, NTSC	EX82D9V0409W-N
EX82D9V0409W-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, white, PAL	EX82D9V0409W-P
EX82D8V0922W-N Infrared Imager Day/Night dual sensor, VA9-22 mm, 850 nm BlackDiamond, white, NTSC	EX82D8V0922W-N
EX82D8V0922W-P Infrared Imager Day/Night dual sensor, VA9-22 mm, 850 nm BlackDiamond, white, PAL	EX82D8V0922W-P
EX82D9V0922W-N Infrared Imager Day/Night dual sensor, VA9-22 mm, 940 nm BlackDiamond, white, NTSC	EX82D9V0922W-N
EX82D9V0922W-P Infrared Imager Day/Night dual sensor, VA9-22 mm, 940 nm BlackDiamond, white, PAL	EX82D9V0922W-P

Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.015W Pole Mount Adapter Pole Mount Adapter, White	EXMB.015w
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
EXSH.01B Sunhood Sunhood, black	EXSH01B
EXSH.01W Sunhood Sunhood, white	EXSH01W

EX80-IP Infrared Imager



Features

- ▶ **Intelligent Video Analysis (IVA)**
- ▶ **Black Diamond High Fidelity Infrared Technology**
- ▶ **Precision Engineered Performance Optics**
- ▶ **High Performance Video Encoder**
- ▶ **Rugged All-Weather Construction**

The EX80-IP is a dual-sensor infrared imager featuring a powerful processor for Intelligent Video Analysis (IVA), IP infrared imaging design and detection-level night-time imaging up to 200 ft for critical 24/7 surveillance applications.

For exceptional performance both day and night, the EX80-IP infrared imager incorporates dual-sensor design and combines it with award-winning Black Diamond infrared illumination. Together, they are jointly calibrated to provide High-Fidelity night vision imaging.

The EX80-IP provides outstanding day and night imaging performance with lower bandwidth network impact than standard IP cameras for important applications in commercial, residential and industrial surveillance applications.

Functions

Intelligent Video Analysis (IVA)

- On-board video content analysis monitors scene activity and flags user-defined events such as alarms (additional license required)

Black Diamond High Fidelity Infrared Technology

- Award-winning Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds
- Detection-level imaging at 60 m (200 ft)

- Reduces image noise and enables better compression, reducing bit rates and enhancing network stability
- Enables effective night-time performance of video analytics

Precision Engineered Performance Optics

- 480 TVL 1/3-inch color SuperHAD CCD for outstanding daytime color
- 420 TVL 1/3-inch LXR CCD for award-winning night vision
- Infrared-corrected lens eliminates focus shift and infrared bleed

High Performance Video Encoder

- MPEG-4 and MJPEG at 30fps, full resolution
- Tri-stream video allows for simultaneous high resolution viewing with high efficiency storage (or vice versa)
- Supported by a wide range of VMS and NVR solutions

Rugged All-Weather Construction

- Weather-sealed housing design to NEMA 4X
- Cable-managed wall bracket
- Sliding optical chassis for easy-optical adjustments

Parameters at 850 nm

Detection	60 m (200 ft)
Classification	45 m (150 ft)
Recognition	30 m (100 ft)
Identification	15 m (50 ft)

Technical Specifications

Video

Sensor	C5 Hi-Res Color CCD	SX3 Monochrome CCD
Effective Pixels	NTSC: 768 x 494 (HxV) PAL: 752 x 582 (HxV)	EIA: 510 x 492 (HxV) CCIR: 500 x 582 (HxV)
Resolution	480 TVL	420 TVL
S/N Ratio	Greater than 48 dB	Greater than 50 dB
Daytime Sensitivity	1 lux at F2	0.05 lux at F2
Night time Sensitivity	0.0 lux (works in total darkness)	
Lens Options	4 to 9 mm varifocal auto-iris	
Gamma	0.45	
Video Output	1 Vpp, 75 ohm	
Day-Night Switching	Photocell-controlled, automatic	
Photocell	Automatic, sensitivity adjustable	
LEDs	Black Diamond High-Fidelity Infrared, intensity adjustable	
Wavelength	850 nm (semi-covert) or 940 nm (covert)	

Night Vision Ranges*

Detection	60 m (200 ft)
Classification	45 m (150 ft)
Recognition	30 m (100 ft)
Identification	15 m (50 ft)

Interfaces

Ethernet 10/100 Base-T RJ45

Analog PAL or NTSC BNC

IP

Protocols Telnet, RTP, HTTP(S), ARP, TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x

Compression MPEG-4 SP and MJPEG, up to 30 frames per second, tri-stream selectable

Frame Rate 1-30 FPS programmable (full motion)

Bandwidth Configurable from 9.6 Kbps to 6 Mbps

Resolution and Frame Rates	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Electrical

Voltage Supply 12 VDC or 24 VAC

Power Consumption 36 W max

Mechanical

Construction Robust aluminum casting

Finish Baked enamel finish, black standard

Bracket Cable managed wall bracket included

Dimensions 131 x 139 x 207 mm (H x W x D)
5.2 x 5.5 x 8.2 in (H x W x D)

Weight 1.4 kg (3.4 lb)

Environmental

Operation Temperature Range -50 °C to +50 °C (-58 °F to +122 °F)

Environment NEMA 4X compliant

* For 940 nm, 50-60% distance loss from stated distances at 850 nm

Ordering Information

NEI-808V04-21B IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 850 nm IR, 4-9 mm, black, NTSC	NEI-808V04-21B
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NEI-808V04-11B IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 850 nm IR, 4-9 mm, black, PAL	NEI-808V04-11B
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NEI-809V04-21B IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 940 nm IR, 4-9 mm, black, NTSC	NEI-809V04-21B
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NEI-809V04-11B IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 940 nm IR, 4-9 mm, black, PAL	NEI-809V04-11B
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NEI-808V04-21W IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 850 nm IR, 4-9 mm, white, NTSC	NEI-808V04-21W
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NEI-808V04-11W IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 850 nm IR, 4-9 mm, white, PAL	NEI-808V04-11W
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NEI-809V04-21W IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 940 nm IR, 4-9 mm, white, NTSC	NEI-809V04-21W
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NEI-809V04-11W IP Infrared Imager IP IR Imager, day/night dual sensor, 480/420 TVL, 940 nm IR, 4-9 mm, white, PAL	NEI-809V04-11W
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Accessories

EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
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EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
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EXMB.015W Pole Mount Adapter Bracket Pole Mount Adapter Bracket, white	EXMB.015W
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EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
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EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
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EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
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EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
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EXSH.01B Sunhood Sunhood, black	EXSH01B
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EXSH.01W Sunhood Sunhood, white	EXSH01W
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EX80 Infrared Imager



Features

- ▶ **Daytime color, active-infrared night vision**
- ▶ **No focus shift, IR bleed or other distortions**
- ▶ **Black Diamond infrared technology**
- ▶ **Detection-level imaging to 60 m (200 ft)**
- ▶ **Packed with installer-friendly enhancements**

The EX80 is a dual-sensor, dual-lens, Infrared Imager that delivers exceptional color performance by day and award-winning night vision for important applications in 24/7 surveillance.

Building from its patented Integrated Day/Night design, the new EX80 Infrared Imager combines field-proven optics and ground-breaking Black Diamond technology for High-Fidelity night vision imaging, the most advanced level of night vision performance available today.

Capable of fulfilling all four DCRI surveillance levels (Detection, Classification, Recognition and Identification), the EX80 provides effective 24/7 imaging across a wide range of applications including commercial and residential surveillance.

Functions

Black Diamond High Fidelity Night Vision

- Award-winning Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds
- Detection-level imaging at 60 m (200 ft)
- Enables effective 24/7 operation across a wide variety of surveillance applications

Patented Dual Sensor Integrated Day Night Design

- 480 TVL Hi-Res color CCD for outstanding daytime color
- 420 TVL Day/Night CCD for award-winning night vision

- Completely eliminates focus shift, IR bleed and other image distortions typical in conventional night vision cameras

Installer-Friendly Features

- Sliding optical chassis for fast, easy-access lens and CCD adjustments
- Captive screws
- Adjustable infrared intensity and photocell sensitivity
- Weather-sealed housing design to NEMA 4X
- 4 to 9 mm varifocal, auto-iris lenses
- Cable-managed wall bracket, pan-tilt adjustable

DCRI Performance

Our CCTV Infrared Imagers are tested for performance to DCRI surveillance levels. Conformance to these criteria ensure that our cameras deliver outstanding video at any one of the four levels of surveillance shown below, assuring security specifiers the broadest range of capability.

Parameters at 850 nm

Detection	60 m (200 ft)
Classification	45 m (150 ft)
Recognition	30 m (100 ft)
Identification	15 m (50 ft)

Technical Specifications

Video

Sensor	C5 Hi-Res Color CCD	SX3 Monochrome CCD
Effective Pixels	NTSC: 768 x 494 (HxV)	EIA: 510 x 492 (HxV)
	PAL: 752 x 582 (HxV)	CCIR: 500 x 582 (HxV)
Resolution	480 TVL	420 TVL
S/N Ratio	Greater than 48 dB	Greater than 50 dB
Daytime Sensitivity	1 lux at F2	0.05 lux at F2
Night time Sensitivity	0.0 lux (works in total darkness)	
Lens Options	4 to 9 mm varifocal auto-iris	
Gamma	0.45	
Video Output	1 Vpp, 75 ohm	
Day-Night Switching	Photocell-controlled, automatic	
Photocell	Automatic, sensitivity adjustable	
LEDs	Black Diamond High-Fidelity Infrared, intensity adjustable	
Wavelength	850 nm (semi-covert) or 940 nm (covert)*	

Electrical

Voltage Supply	12 VDC or 24 VAC
Power Consumption	36 W max

Mechanical

Construction	Robust aluminum casting
Finish	Baked enamel finish, black standard
Bracket	Cable managed wall bracket included
Dimensions	131 x 139 x 207 mm (H x W x D) 5.2 x 5.5 x 8.2 in (H x W x D)
Weight	1.4 kg (3.4 lb)

Environmental

Operation Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Environment	NEMA 4X compliant

Note * For 940 nm, 50-60% distance loss from stated distances at 850 nm

Ordering Information

EXSH.01B Sunhood Sunhood, black	EXSH01B
EXSH.01W Sunhood Sunhood, white	EXSH01W

Ordering Information

EX80D8V0409BN-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, black, NTSC	EX80D8V0409BN-N
EX80D8V0409BN-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, black, PAL	EX80D8V0409BN-P
EX80D9V0409BN-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, black, NTSC	EX80D9V0409BN-N
EX80D9V0409BN-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, black, PAL	EX80D9V0409BN-P
EX80D8V0409W-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, white, NTSC	EX80D8V0409W-N
EX80D8V0409W-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 850 nm BlackDiamond, white, PAL	EX80D8V0409W-P
EX80D9V0409W-N Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, white, NTSC	EX80D9V0409W-N
EX80D9V0409W-P Infrared Imager Day/Night dual sensor, VA4-9 mm, 940 nm BlackDiamond, white, PAL	EX80D9V0409W-P

Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.015W Pole Mount Adapter Pole Mount Adapter, White	EXMB.015w
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061

EX85 Megapixel IP Infrared Imager



Features

- ▶ **3.1 megapixel day sensor, 1.3 megapixel night sensor**
- ▶ **Award-winning Black Diamond technology**
- ▶ **Detection-level night vision at 128 m (420 ft)**
- ▶ **Field-proven IP67 all-weather design**
- ▶ **Innovative Bit-Reduce technology minimizes bit rate**

The EX85 is at the pinnacle of today's most advanced imaging technologies, combining dual megapixel sensors and Black Diamond night vision technology.

The result is the most advanced level of imaging performance for today's critical security applications: the amazing detail of 3.1 million color pixels by day and the award-winning performance of Black Diamond night vision to 128 m (420 ft). The EX85 also incorporates Bit-Reduce technology, helping to minimize bandwidth requirements.

The EX85 incorporates a ruggedized outdoor enclosure, field-proven for reliability in the world's worst environments.

The EX85 delivers the imaging performance required by today's critical applications and video analytics software.

Functions

Black Diamond Infrared Technology

- Award-winning Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds
- Effective 24/7 surveillance for critical applications, providing up to 128 m (420 ft) of high definition detection-level video
- Eliminates bit rate problems caused by poor night time performance

Megapixel Sensors

- 3.1 megapixel day sensor and 1.3 megapixel night-time sensor
- Up to 10x the resolution of high performance CCD sensors
- Matched megapixel lenses for crystal clear images with amazing detail
- Megapixel field of view allows digital zoom, eliminating the necessity for pan-tilt-zoom functionality

Extreme Environment Housing Certified to IP67

- Extreme weather sealed for performance under harsh environmental conditions
- Field-proven for long-term reliability and toughness
- The security industry's only high performance outdoor night vision IP camera

Bit-Reduce Technology

Innovative Bit-Reduce technology ensures low bit rates and helps to stabilize networks. Bit-Reduce design is a combination of:

- Black Diamond Infrared illumination, which solves the problem of failed compression at night caused by image noise
- Proprietary on-camera image processing, which sends only the required image data down the network, reducing bandwidth
- More than twenty compression levels to help achieve the right balance of file size and image quality for any application

Bit-Reduce design is unique to the EX85, making it the most advanced megapixel camera available today, not only for imaging performance but also for its bandwidth management capabilities.

Megapixel Technology

Megapixel cameras offer numerous advantages over conventional cameras. Below is a partial list.

- Greater resolution for outstanding image detail
- Greater field of view, reducing the number of required cameras
- No need for PTZ, no moving parts, record everything all-the-time
- Lossless forensic zoom for post-event investigations
- Enables optimal performance of video detection and video analytic software
- Greater remote control over image acquisition parameters
- Easily scalable and expandable, with lower installation and long-term ownership costs

Night Vision, Compression and Bit Rate

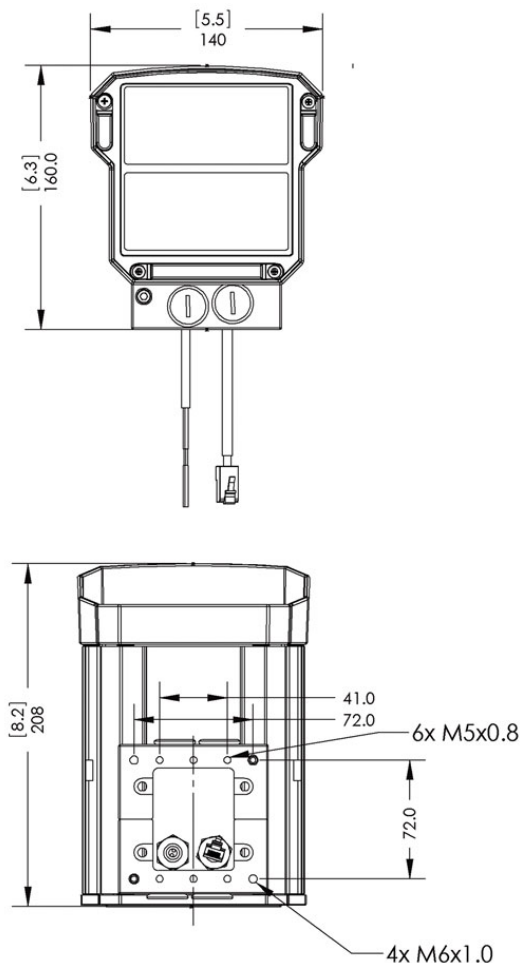
	Without Infrared Illumination	With Black Diamond Infrared Illumination
AGC Strength	High	None
Effect on Image	Low SN ratio, snow, graininess	Even-illumination, high SN ratio
Effect on Compression	Poor compression performance	Good compression performance
Effect on Bit Rate	High bit rates	Low bit rates
Effect on Network	Strained bandwidth, system instability	Low bandwidth requirements, uncompromised image quality

DCRI Performance Parameters

Detection	128 m (420 ft)
Classification	98 m (320 ft)
Recognition	76 m (250 ft)
Identification	45 m (150 ft)

Certifications and Approvals

Region	Certification
Europe	CE

Installation/Configuration Notes**Technical Specifications****Camera**

Daytime Color Sensor	3.1 megapixel (2048H x 1536V), 1/2 in sensor (resolution greater than 1000 TVL)
Night Time Mono Sensor	1.3 megapixel (1280H x 1024V), 1/2 in sensor (resolution greater than 1000 TVL)
Night Time Sensitivity	Zero lux (works in complete darkness)
Frame Rate	Color: 20 fps at 1920x1200 Monochrome: 30 fps at 1280x1024
Day/Night Switching	Automatic, adjustable via API
SNR	45 dB or greater
Dynamic Range	60 dB
Lens type	8, 12, 25 or 50 mm fixed megapixel lenses
Zoom	Always-on digital zoom, available simultaneously with overview image
Range of focus	5 m to infinity
Motion Detection	On-camera motion detection or with NVR/VMS integration
Compression	Motion JPEG with over 20 quality settings
Bit rate	Bit-Reduce image processing with fully dynamic adjustment capability
Viewer	User interface supplied
Network Interface	Ethernet 100 Base-T
Connector	RJ45
Application Protocol	TFTP / HTTP
Network Protocol	IP
Data Link Transmission	Ethernet over UTP or STP
Firmware Upgradeability	Available via application manager
Programmability (via software interface)	Compression, auto-exposure, white balance, flicker control, picture size, cropping, brightness, sharpness, saturation, Day/Night switching point, frame rate, image rotation, snapshot, dynamic bandwidth allocation, motion detection

IP Infrared Imaging

Infrared Type	Black Diamond infrared illumination
Wavelength	850 nm
Night Vision Ranges	Detection 128 m (420 ft)
	Classification 98 m (320 ft)
	Recognition 76 m (250 ft)
	Identification 45 m (150 ft)

Environmental

Weight	2.3 kg (5 lb)
Operation Temperature Range	-40 °C to +50 °C (-40 °F to +122 °F)
Bracket	Basic cable-managed wall bracket included
Environment	IP67 compliant

Electrical

Voltage supply	12 to 24 VAC or VDC
Power Consumption	Day: 4.5 W max, Night: 36 W max

Ordering Information

EX85D8IP08B Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 8 mm lens, 850 nm Black Diamond, Black	EX85D8IP08B
EX85D8IP12B Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 12 mm lens, 850 nm Black Diamond, Black	EX85D8IP12B
EX85D8IP25B Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 25 mm lens, 850 nm Black Diamond, Black	EX85D8IP25B
EX85D8IP50B Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 50 mm lens, 850 nm Black Diamond, Black	EX85D8IP50B
EX85D8IP08W Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 8 mm lens, 850 nm BlackDiamond, White	EX85D8IP08W
EX85D8IP12W Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 12 mm lens, 850 nm BlackDiamond, White	EX85D8IP12W
EX85D8IP25W Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 25 mm lens, 850 nm BlackDiamond, White	EX85D8IP25W
EX85D8IP50W Megapixel IP IR Imager Megapixel 1/2 in CMOS Day/Night 3.1/1.3 dual sensor, 50 mm lens, 850 nm BlackDiamond, White	EX85D8IP50W
Accessories	
EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.015W Pole Mount Adapter Pole Mount Adapter, White	EXMB.015w
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
EXSH.01B Sunhood Sunhood, black	EXSH01B
EXSH.01W Sunhood Sunhood, white	EXSH01W
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W

ZX55-IP Infrared Imager



Features

- ▶ **High performance day/night camera for perimeter surveillance and critical asset monitoring**
- ▶ **Integrated Intelligent Video Analysis (IVA)**
- ▶ **Black Diamond Infrared Illumination Technology**
- ▶ **Long-range Classification and Recognition Level Performance**
- ▶ **Rugged All-Weather Construction**
- ▶ **Bosch BVIP MPEG-4 video encoder**

The ZX55-IP is an Infrared Imager for long range, critical outdoor Day/Night surveillance applications. The ZX55-IP features a 9-90 mm lens, powerful Black Diamond infrared illumination and a powerful processor for Intelligent Video Analysis (IVA). The ZX55-IP also provides night imaging up to 300 m (1000 ft) resulting in unparalleled performance for long range 24/7 surveillance applications.

To effectively monitor critical assets and long stretching perimeters, the ZX55-IP incorporates a 9-90 mm varifocal lens. Narrow or wide angle shots are possible for the preferred field of view, with the system capable of delivering identification-level performance to 100 m (330 ft), providing the ability to distinguish facial features.

This high level imaging is also delivered with lower network bandwidth impact than standard IP cameras.

The weather-rated ZX55-IP features top and side sunshields to reflect heat in applications that expose the unit to intense direct sunlight. The integral flow-through-vent also allows airflow to directly cool the high performance system and lower internal temperatures. The ZX55-IP is ideal for critical applications such as force protection, perimeter surveillance, and critical asset monitoring.

Functions

Intelligent Video Analysis (IVA)

- On-board video content analysis monitors scene activity and flags user-defined events such as alarms (additional license required)

Black Diamond Infrared Illumination Technology

- Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds
- Extended range infrared to deliver night imaging to 300 m (1000 ft)
- Reduces image noise and enables better compression, reducing bit rates and enhancing network stability
- Enables effective night-time performance of video analytics

Rugged All-Weather Construction

- Field-proven NEMA4X weather-sealed housing
- Cable-managed wall bracket
- Dedicated camera bay for easy-optical adjustments
- Sunshields on top and sides for optimal heat deflection
- Designed to survive 250 km/h (155 mph) wind loading

High Performance Video Encoder

- MPEG-4 and MJPEG at 30 fps, full resolution
- Tri-stream video allows for simultaneous high resolution viewing with high efficiency storage (or vice versa)
- Supported by a wide range of VMS and NVR solutions

Precision Engineered Performance Optics

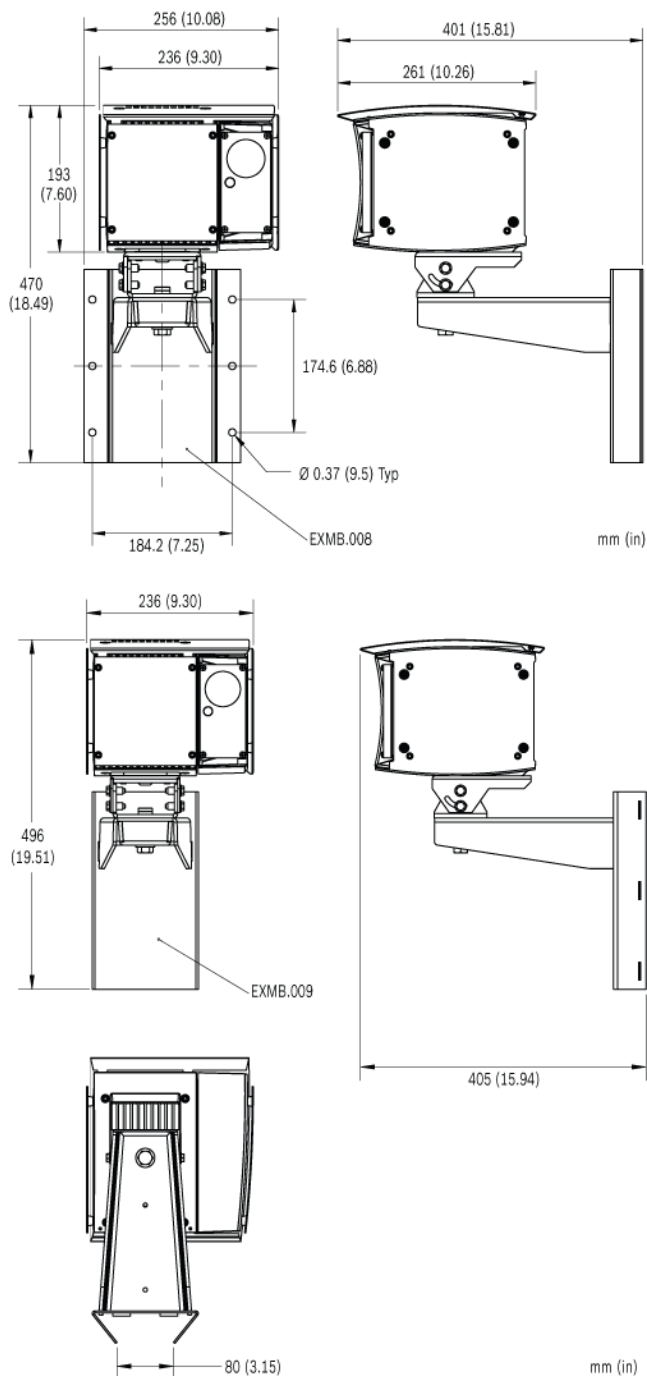
- 540 TVL hi-resolution day/night CCD for vivid daytime color and outstanding night vision
- 9-90 mm infrared-corrected lens delivers a wide DCRI surveillance range to 300 m (1000 ft) for maximum imaging versatility
- Infrared-corrected lens eliminates focus shift and infrared bleed

Certifications and Approvals

Region	Certification
Europe	CE
USA	FCC
Canada	CSA

Installation/Configuration Notes

Dimensions



Technical Specifications

Video

ZX55-IP Infrared Imager

Sensor	1/3-inch Day/Night CCD
Effective Pixels (H x V)	NTSC: 768 x 494
Effective Pixels (H x V)	PAL: 752 x 582
Resolution	540 TVL color / 540 TVL monochrome
Daytime Sensitivity	0.02 Lux at F1.4

Night time Sensitivity	0 Lux - works in total darkness
Lens	IR corrected 9 to 90 mm varifocal auto-iris, DC drive
Gamma	0.45
Video Output	1 Vpp, 75 ohm
Day-Night Switching	Photocell-controlled, automatic
Photocell	Automatic, sensitivity adjustable
Controls	OSD with joystick operation
Illumination	Black Diamond Infrared LED array, intensity adjustable
Wavelength	850 nm (semi-covert) or *940 nm (covert)

*(For 940 nm, 50-60% distance loss from stated distances at 850 nm)

Range Specifications

	Night Vision	IR Horizontal Field of View (10° beam angle)
Detection	300 m (1000 ft)	45 m (150 ft)
Classification	250 m (820 ft)	35 m (120 ft)
Recognition	150 m (500 ft)	25 m (80 ft)
Identification	100 m (330 ft)	15 m (50 ft)

Interfaces

Ethernet	10/100 Base-T RJ45
Analog	PAL or NTSC BNC

IP

Protocols	Telnet, RTP, HTTP(S), ARP, TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x
Compression	MPEG-4 SP and MJPEG, up to 30 frames per second, tri-stream selectable
Frame Rate	1-30 FPS programmable (full motion)
Bandwidth	Configurable from 9.6 Kbps to 6 Mbps

Resolution and Frame Rates

	PAL (H x V)	NTSC (H x V)
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Electrical

Voltage Supply	12 to 24 VDC or VAC
Power Consumption	58 W max

Mechanical

Construction	Aluminum extrusion / polycarbonate / ABS alloy
Finish	Anodized housing / acrylic urethane paint for sun shield
Window	Injection molded 2.5 mm window
Bracket	Heavy duty cable managed bracket included
Dimensions (HxWxD)	296 x 236 x 377 mm (12 x 9 x 15 in)
Weight	8.6 kg (19 lb)

Environmental

Operation Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Wind Load	Designed to survive 250 km/h (155 mph) wind loading
Environment	Certified to CSA Type 4X outdoor weather rating. Designed to IP67

Ordering Information

NEI-558V90-21BS IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, NTSC, black, wall mount	NEI-558V90-21BS
NEI-558V90-11BS IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, PAL, black, wall mount	NEI-558V90-11BS
NEI-559V90-21BS IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 940 nm Black Diamond, NTSC, black, wall mount	NEI-559V90-21BS
NEI-559V90-11BS IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 940 nm Black Diamond, PAL, black, wall mount	NEI-559V90-11BS
NEI-558V90-21BP IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, NTSC, black, pole mount	NEI-558V90-21BP
NEI-558V90-11BP IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, PAL, black, pole mount	NEI-558V90-11BP
NEI-559V90-21BP IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 940 nm Black Diamond, NTSC, black, pole mount	NEI-559V90-21BP
NEI-559V90-11BP IP IR Imager Long range IP IR Imager, Day/night, 9-90 mm, 940 nm Black Diamond, PAL, black, pole mount	NEI-559V90-11BP

ZX55 Infrared Imager



Features

- ▶ **High performance day/night camera for perimeter surveillance and critical asset monitoring**
- ▶ **Black Diamond Infrared Illumination Technology**
- ▶ **Long-range Classification and Recognition Level Performance**
- ▶ **Rugged All-Weather Construction**

The ZX55 is an Infrared Imager for long range, critical outdoor Day/Night surveillance applications. The ZX55 features a 9-90 mm lens and powerful Black Diamond infrared illumination. The ZX55 also provides night imaging up to 300 m (1000 ft) resulting in unparalleled performance for long range 24/7 surveillance applications.

To effectively monitor critical assets and long stretching perimeters, the ZX55 incorporates a 9-90 mm varifocal lens. Narrow or wide angle shots are possible for the preferred field of view, with the system capable of delivering identification-level performance to 100 m (330 ft), providing the ability to distinguish facial features.

The weather-rated ZX55 features top and side sunshields to reflect heat in applications that expose the unit to intense direct sunlight. The integral flow-through-vent also allows airflow to directly cool the high performance system and lower internal temperatures. The ZX55 is ideal for critical applications such as force protection, perimeter surveillance, and critical asset monitoring.

Functions

Black Diamond Infrared Illumination Technology

- Black Diamond technology eliminates hotspot foregrounds and underexposed backgrounds
- Extended range infrared to deliver night imaging to 300 m (1000 ft)

- Reduces image noise and enables better compression, reducing bit rates and enhancing network stability
- Enables effective night-time performance of video analytics

Rugged All-Weather Construction

- Field-proven NEMA4X weather-sealed housing
- Cable-managed wall bracket
- Dedicated camera bay for easy-optical adjustments
- Sunshields on top and sides for optimal heat deflection
- Designed to survive 250 km/h (155 mph) wind loading

Precision Engineered Performance Optics

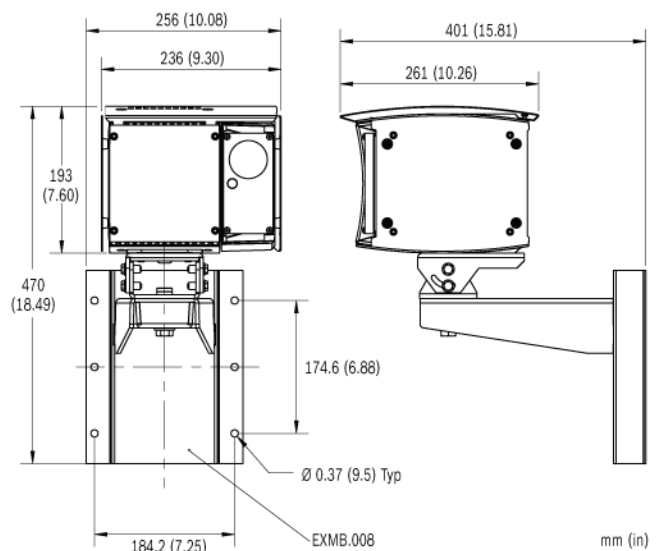
- 540 TVL hi-resolution day/night CCD for vivid daytime color and outstanding night vision
- 9-90 mm infrared-corrected lens delivers a wide DCRI surveillance range to 300 m (1000 ft) for maximum imaging versatility
- Infrared-corrected lens eliminates focus shift and infrared bleed

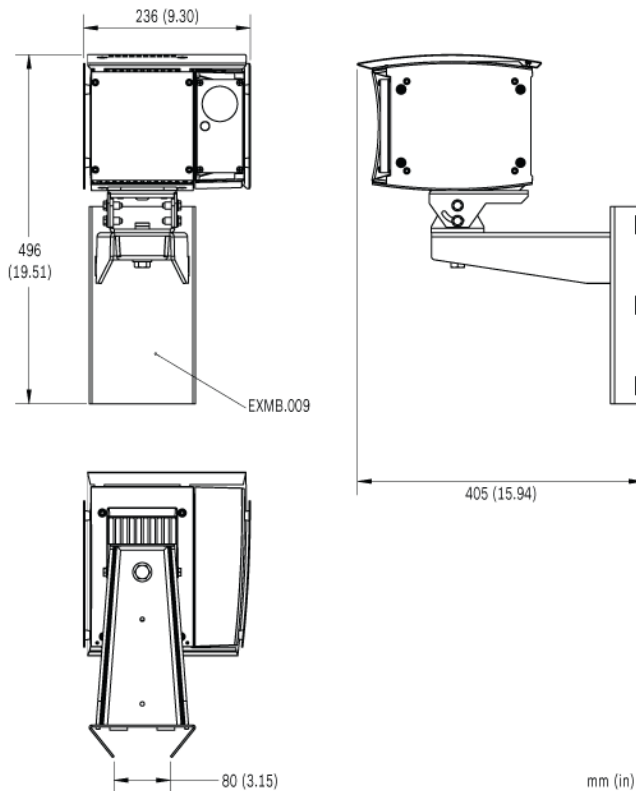
Certifications and Approvals

Region	Certification
Europe	CE
USA	FCC
Canada	CSA

Installation/Configuration Notes

Dimensions





Technical Specifications

Video

ZX55 Infrared Imager

Sensor	1/3-inch Day/Night CCD
Effective Pixels (H x V)	NTSC: 768 x 494
Effective Pixels (H x V)	PAL: 752 x 582
Resolution	540 TVL color / 540 TVL monochrome
Daytime Sensitivity	0.02 Lux at F1.4
Night time Sensitivity	0 Lux - works in total darkness
Lens	IR corrected 9 to 90 mm varifocal auto-iris, DC drive
Gamma	0.45
Video Output	1 Vpp, 75 ohm
Day-Night Switching	Photocell-controlled, automatic
Photocell	Automatic, sensitivity adjustable
Controls	OSD with joystick operation
Illumination	Black Diamond Infrared LED array, intensity adjustable
Wavelength	850 nm (semi-covert) or *940 nm (covert)

*(For 940 nm, 50-60% distance loss from stated distances at 850 nm)

Range Specifications

	Night Vision	IR Horizontal Field of View (10° beam angle)
Detection	300 m (1000 ft)	45 m (150 ft)
Classification	250 m (820 ft)	35 m (120 ft)
Recognition	150 m (500 ft)	25 m (80 ft)
Identification	100 m (330 ft)	15 m (50 ft)

Interfaces

Analog	PAL or NTSC BNC
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Electrical

Voltage Supply	12 to 24 VDC or VAC
Power Consumption	58 W max

Mechanical

Construction	Aluminum extrusion / polycarbonate / ABS alloy
Finish	Anodized housing / acrylic urethane paint for sun shield
Window	Injection molded 2.5 mm window
Bracket	Heavy duty cable managed bracket included
Dimensions (HxWxD)	296 x 236 x 377 mm (12 x 9 x 15 in)
Weight	8.6 kg (19 lb)

Environmental

Operation Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Wind Load	Designed to survive 250 km/h (155 mph) wind loading
Environment	Certified to CSA Type 4X outdoor weather rating. Designed to IP67

Ordering Information

VEI-558V90-21BS IR imager Long range IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, NTSC, black, wall mount	VEI-558V90-21BS
VEI-558V90-11BS IR Imager Long range IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, PAL, black, wall mount	VEI-558V90-11BS
VEI-559V90-21BS IR imager Long range IR Imager, Day/night, 9-90 mm, 940 nm Black Diamond, NTSC, black, wall mount	VEI-559V90-21BS
VEI-559V90-11BS IR imager Long range IR Imager, Day/night, 9-90 mm, 940 nm Black Diamond, PAL, black, wall mount	VEI-559V90-11BS
VEI-558V90-21BP IR Imager Long range IR Imager, Day/night, 9-90 mm, 850 nm Black Diamond, NTSC, black, pole mount	VEI-558V90-21BP

Ordering Information**VEI-558V90-11BP IR Imager**

Long range IR Imager, Day/night, 9-90 mm,
850 nm Black Diamond, PAL, black, pole
mount

VEI-558V90-11BP

VEI-559V90-21BP IR Imager

Long range IR Imager, Day/night, 9-90 mm,
940 nm Black Diamond, NTSC, black, pole
mount

VEI-559V90-21BP

VEI-559V90-11BP IR Imager

Long range IR Imager, Day/night, 9-90 mm,
940 nm Black Diamond, PAL, black, pole
mount

VEI-559V90-11BP

EX36-IP No-Grip Corner Mount Camera



Features

- ▶ **Intelligent Video Analysis (IVA)**
- ▶ **No-Grip Design**
- ▶ **High Performance Video Encoder**
- ▶ **Covert Active-Infrared Illumination**

The EX36-IP is a No-Grip corner mount camera featuring a powerful processor for Intelligent Video Analysis (IVA) and IP Infrared Imaging design for 24/7 effective networked surveillance in high risk, vandal-prone applications.

The EX36-IP uses a No-Grip anchor-free design which enables it to view the entirety of a small room, including the floor beneath the camera, under any ambient lighting conditions, even in completely dark rooms. The camera is impossible to grip or hang from, providing maximum safety for applications such as prison cells, elevators and psychiatric hospitals.

The EX36-IP harnesses the power of infrared illumination to deliver outstanding images day or night, integrating seamlessly with existing IP network infrastructure. The EX36-IP provides outstanding day and night imaging performance with lower bandwidth network impact than standard IP cameras.

Functions

Applications

- Prison cells
- Hospital recovery rooms
- Psychiatric care rooms
- Vandal-prone areas
- Indoor CCTV

Technical Specifications

Video

Sensor	MX4 Hi-resolution day/night CCD	C7 Hi-resolution Color CCD
Effective Pixels (NTSC)	768 (H) x 494 (V)	768(H) x 494(V)
Effective Pixels (PAL)	752 (H) x 582 (V)	752(H) x 582(V)
Resolution	540 TVL color / 540 TVL monochrome	500 TVL
S/N Ratio	Greater than 48dB	Greater than 48dB
Daytime Sensitivity	0.02 Lux with F1.4 lens	2.7 Lux at F1.4
Night-time Sensitivity	0 Lux - operates in total darkness	2.7 Lux at F1.4
Lens Options	Fixed: 2.5 mm and 3.6 mm	Fixed: 2.5 mm and 3.6 mm
Gamma	0.45	0.45
Video Output	1 Vpp, 75 ohms	1 Vpp, 75 ohms
Day-Night Switching	Photocell-controlled, automatic	N/A

Infrared Illumination

Photocell	Automatic, sensitivity adjustable	N/A
LEDs	84 LEDs, Infrared, intensity adjustable	None - No IR window
Wavelength	940 nm covert or 850 nm semi-covert	N/A
Night Vision Distance	9 m (30 ft)	N/A

Interfaces

Ethernet	10/100 Base-T RJ45
Analog	PAL or NTSC BNC

IP

Protocols	Telnet, RTP, HTTP(S), ARP, TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x
Compression	MPEG-4 SP and MJPEG, up to 30 frames per second, tri-stream selectable
Frame Rate	1-30 FPS programmable (full motion)
Bandwidth	Configurable from 9.6 Kbps to 6 Mbps

Resolution and Frame Rates	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Mechanical

Weight	1.2 kg (2.6 lbs)
Construction	Robust aluminum casting, painted steel with flush removable front panel and tamper-resistant screws
Window	¼-inch thick LEXAN
Overall Dimensions (WxHxD)	224 x 134 x 155 mm (8.8 x 5.3 x 6.1 in)

Environmental

Operational Range	-50°C to +50°C (58°F to 122°F)
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Electrical

Voltage Supply	12 VDC / 24 VAC
Power Consumption	900 mA at 12 VDC max

Ordering Information

NEC-360F02-21W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 2.5 mm lens, NTSC	NEC-360F02-21W
NEC-360F02-11W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 2.5 mm lens, PAL	NEC-360F02-11W
NEC-360F02-21WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 2.5 mm lens, NTSC, microphone	NEC-360F02-21WM
NEC-360F02-11WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 2.5 mm lens, PAL, microphone	NEC-360F02-11WM
NEC-360F04-21W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 3.6 mm lens, NTSC	NEC-360F04-21W
NEC-360F04-11W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 3.6 mm lens, PAL	NEC-360F04-11W
NEC-360F04-21WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 3.6 mm lens, NTSC, microphone	NEC-360F04-21WM
NEC-360F04-11WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. hi-res color, 500 TVL, 3.6 mm lens, PAL, microphone	NEC-360F04-11WM
NEI-368F02-21W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 2.5 mm lens, NTSC	NEI-368F02-21W
NEI-368F02-11W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 2.5 mm lens, PAL	NEI-368F02-11W

Ordering Information

NEI-368F04-21W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 3.6 mm lens, NTSC	NEI-368F04-21W
NEI-368F04-11W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 3.6 mm lens, PAL	NEI-368F04-11W
NEI-369F02-21W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 2.5 mm lens, NTSC	NEI-369F02-21W
NEI-369F02-11W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 2.5 mm lens, PAL	NEI-369F02-11W
NEI-369F04-21W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 3.6 mm lens, NTSC	NEI-369F04-21W
NEI-369F04-11W IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 3.6 mm lens, PAL	NEI-369F04-11W
NEI-368F02-21WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 2.5 mm lens, NTSC, microphone	NEI-368F02-21WM
NEI-368F02-11WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 2.5 mm lens, PAL, microphone	NEI-368F02-11WM
NEI-368F04-21WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 3.6 mm lens, NTSC, microphone	NEI-368F04-21WM
NEI-368F04-11WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 3.6 mm lens, PAL, microphone	NEI-368F04-11WM
NEI-369F02-21WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 2.5 mm lens, NTSC, microphone	NEI-369F02-21WM
NEI-369F02-11WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 2.5 mm lens, PAL, microphone	NEI-369F02-11WM
NEI-369F04-21WM IP Corner Mount Camera IP vandal proof corner cam, 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 3.6 mm lens, NTSC, microphone	NEI-369F04-21WM

Ordering Information

NEI-369F04-11WM IP Corner Mount**NEI-369F04-11WM****Camera**

IP vandal proof corner cam, 1/3 in. extended
day/night, 540/540 TVL, 940 nm IR, 3.6 mm
lens, PAL, microphone

EX36N Corner-mount No-grip Camera



Features

- ▶ **No-Grip anchor-free design for maximum safety**
- ▶ **Vandal-resistant housing with flush corner mount fit**
- ▶ **Views an entire small room, including directly beneath**
- ▶ **940 nm illuminator for covert night vision to 9 m (30 ft)**
- ▶ **Black Diamond infrared technology**

The EX36N is a vandal-resistant corner Integrated Day/Night camera featuring anchor-free No-Grip design. The EX36N has no anchor points for maximum safety in environments with at-risk individuals. The innovative design allows a perfectly flush fit into the corner of a room that protects against even the most brutal attempt to destroy, detach or disable the camera. The sharp 45° angle hides all wiring and delivers complete coverage of the entirety of a 4.5 x 4.5 m (15 x 15 ft) room, including below the camera itself. Double ¼ in LEXAN plates ensure optical clarity and are virtually unbreakable.

The EX36N incorporates mechanical filter technology for vivid daytime color and exceptional night-time imaging under infrared illumination while maintaining sharp focus under all lighting conditions. The EX36N also features proprietary CCD technology for outstanding spectral response in the near infrared for excellent active-infrared night vision.

Infrared-emitting LEDs achieve covert, effective night vision using Black Diamond technology for the most advanced level of night vision performance available today. Photocell-controlled infrared reduces energy consumption and ensures excellent imaging performance under low-light conditions. With Black Diamond

technology foreground hotspots and underexposed backgrounds are eliminated. LED intensity is adjustable for optimal performance. An optional microphone is available.

Functions

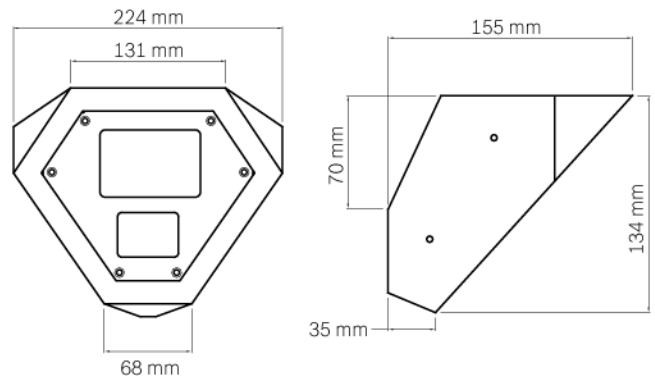
Applications

- Prisons cells
- Hospital rooms
- Psychiatric wards
- Elevators
- Storage rooms
- Interrogation rooms
- Seclusion cells
- Holding cells

Certifications and Approvals

CSA C22.2 No 0-M1991	General Elec. Rqts, Part II
CSA C22.2 No 1-M94	Audio, Video and Similar Equip.
CSA C22.2 No 94-M91	Special Purpose Enclosures
UL Std No 50	Enclosures for Elec. Equipment
UL Std No 2044	Commercial CCTV Equipment
	Applicable health care facility
FCC PART 15 Class A	

Installation/Configuration Notes



Technical Specifications

Sensor	MX4 Hi-resolution day/night CCD
Resolution	540 TVL color
	540 TVL monochrome
Effective Pixels	NTSC: 768 x 494 (HxV)
	PAL: 752 x 582 (HxV)
Sensitivity Day-time	0.02 lux with F1.4 lens
Sensitivity Night time	0.0 lux (works in total darkness)

S/N Ratio	Greater than 48 dB
Filter	Mechanical dual-window IR-Pass / IR-Cut
Video Output	1 Vpp, 75 ohm
Gamma	0.45
Gain Control	AGC
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
LED Type	850 nm or 940 nm, Black Diamond technology, intensity adjustable
Number of LEDs	84
Day/Night Switching	Automatic photocell-control, sensitivity adjustable
Voltage Supply	12 to 24 VAC/VDC
Power Consumption	900 mA at 12 VDC max
Voltage Regulation	Dual VRB design for enhanced electronic stability
Window	1/4 in thick LEXAN
Construction	Painted steel with flush removable front panel and tamper-resistant screws
Dimensions	224 x 134 x 155 mm (W x H x D) 8.8 x 5.3 x 6.1 in (W x H x D)
Weight	1.2 kg (2.6lb)
Temperature Range Operation	-50 °C to +50 °C (-58 °F to 122 °F)
Microphone Frequency Response	20 Hz to 10 kHz
Microphone Sensitivity	68 dB +/-3 dB
Microphone Output	3.2 Vpp / 750 Ohm; bare leads

Ordering Information

EX36MNX802W-N Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 2.5 mm lens, NTSC	EX36MNX802W-N
EX36MNX802W-P Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 2.5 mm lens, PAL	EX36MNX802W-P
EX36MNX804W-N Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 3.6 mm lens, NTSC	EX36MNX804W-N
EX36MNX804W-P Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 850 nm IR, 3.6 mm lens, PAL	EX36MNX804W-P
EX36MNX902W-N Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 2.5 mm lens, NTSC	EX36MNX902W-N
EX36MNX902W-P Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 2.5 mm lens, PAL	EX36MNX902W-P
EX36MNX904W-N Corner-mount Camera 1/3 in. extended day/night, 540/540 TVL, 940 nm IR, 3.6 mm lens, NTSC	EX36MNX904W-N

Ordering Information

EX36MNX802WM-N Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 850 nm IR, 2.5 mm lens, NTSC, microphone	EX36MNX802WM-N
EX36MNX802WM-P Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 850 nm IR, 2.5 mm lens, PAL, microphone	EX36MNX802WM-P
EX36MNX804WM-N Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 850 nm IR, 3.6 mm lens, NTSC, microphone	EX36MNX804WM-N
EX36MNX804WM-P Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 850 nm IR, 3.6 mm lens, PAL, microphone	EX36MNX804WM-P
EX36MNX902WM-N Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 940 nm IR, 2.5 mm lens, NTSC, microphone	EX36MNX902WM-N
EX36MNX902WM-P Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 940 nm IR, 2.5 mm lens, PAL, microphone	EX36MNX902WM-P
EX36MNX904WM-N Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 940 nm IR, 3.6 mm lens, NTSC, microphone	EX36MNX904WM-N
EX36MNX904WM-P Corner-mount No-grip Camera 1/3 in. extended day/night, 540/540TVL, 940 nm IR, 3.6 mm lens, PAL, microphone	EX36MNX904WM-P

EX36 Corner-mount No-grip Camera



Features

- ▶ **Patented No-Grip anchor-free design**
- ▶ **Perfectly flush fit into corners**
- ▶ **Complete coverage of a 4.5 x 4.5 m (15 x 15 ft) room**
- ▶ **Designed for maximum safety**
- ▶ **Compact, tamper- and vandal-resistant**

The EX36 is a vandal-resistant corner camera featuring anchor-free No-Grip design. The EX36 has no anchor points for maximum safety in environments with at-risk individuals. The innovative design allows a perfectly flush fit into the corner of a room that protects against even the most brutal attempt to destroy, detach or disable the camera. The sharp 45° angle hides all wiring and delivers complete coverage of the entirety of a 4.5 x 4.5 m (15 x 15 ft) room, including below the camera itself. Available with optional microphone.

Functions

Applications

- Prison cells
- Hospital recovery rooms
- Psychiatric care rooms
- Vandal-prone areas
- Sleep research

Certifications and Approvals

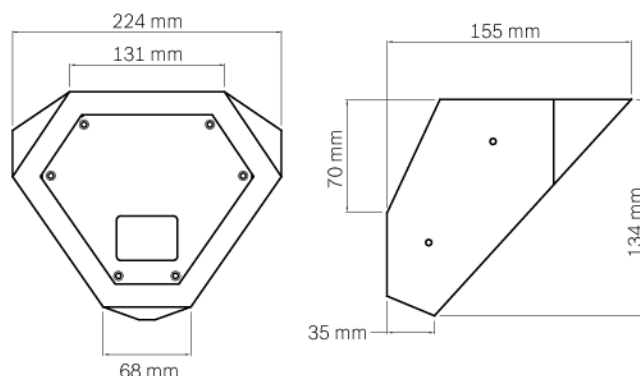
Region	Certification
Europe	CE

CSA C22.2 No 0-M1991
CSA C22.2 No 1-M94
CSA C22.2 No 94-M91
UL Std No 50
UL Std No 2044
FCC PART 15 Class A

General Elec. Rqts, Part II
Audio, Video and Similar Equip.
Special Purpose Enclosures
Enclosures for Elec. Equipment
Commercial CCTV Equipment

Installation/Configuration Notes

Dimensions



Technical Specifications

Color Cameras

CCD	C7 High Resolution Color
Image Sensor	1/3 in Interline SuperHAD
Resolution	500 TVL
Effective Pixels	NTSC: 768 x 494 (HxV) PAL: 752 x 582 (HxV)
Sensitivity	2.7 lux at F1.4
S/N Ratio	Greater than 48 dB

All Versions

Video Output	1 Vpp, 75 ohm
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
Voltage Supply	12 to 24 VAC or VDC
Power Consumption	120 mA at 12 VDC, 1.4 W (max)
Dome Construction	Steel / Painted flush removable front panel with security screws
Window	1/4 in LEXAN
Dimensions	224 x 134 x 155 mm 8.8 x 5.3 x 6.1 in
Weight	0.61 kg (1.3 lb)
Operation Temperature Range	-50 °C to +50 °C (-58 °F to 122 °F)
Microphone Frequency Response	20 Hz to 10 kHz
Microphone Sensitivity	68 dB +/- 3 dB
Microphone Output	3.2 Vpp / 750 Ohm; bare leads

Ordering Information

EX36C702W-N Corner-mount No-grip Camera 1/3 in. hi-res color, 500TVL, 2.5 mm lens, NTSC	EX36C702W-N
EX36C702W-P Corner-mount No-grip Camera 1/3 in. hi-res color, 500TVL, 2.5 mm lens, PAL	EX36C702W-P
EX36C704W-N Corner-mount No-grip Camera 1/3 in. hi-res color, 500 TVL, 3.6 mm lens, NTSC	EX36C704W-N
EX36C704W-P Corner-mount No-grip Camera 1/3 in. hi-res color, 500 TVL, 3.6 mm lens, PAL	EX36C704W-P
EX36C702WM-N Corner-mount No-grip Camera 1/3 in. hi-res color, 500TVL, 2.5 mm lens, NTSC, microphone	EX36C702WM-N
EX36C702WM-P Corner-mount No-grip Camera 1/3 in. hi-res color, 500TVL, 2.5 mm lens, PAL, microphone	EX36C702WM-P
EX36C704WM-N Corner-mount No-grip Camera 1/3 in. hi-res color, 500TVL, 3.6 mm lens, NTSC, microphone	EX36C704WM-N
EX36C704WM-P Corner-mount No-grip Camera 1/3 in. hi-res color, 500TVL, 3.6 mm lens, PAL, microphone	EX36C704WM-P

EX27D Desert Cameras



Features

- ▶ **Optimized and tested for hot desert conditions to 65°C (149°F)**
- ▶ **Reflective sun hood prevents glare in sunny conditions**
- ▶ **Weather-sealed housing, dust-tight and sandstorm-ready**
- ▶ **Exceptional daytime color reproduction and outstanding night-time performance under infrared**

The EX27D-MX4 is specifically designed for day/night surveillance in hot, dusty, desert conditions. An optimized heat-sinking design protects the EX27D-MX4 from internal overheating caused by solar heat gain. The EX27D-MX4 delivers reliable performance to 65°C (149°F).

The EX27D-MX4 Desert camera incorporates MFP (Mechanical Filter with Photocell) technology. Using dual-window mechanical filter technology, the EX27D-MX4 delivers accurate color during the day and outstanding infrared sensitivity at night.

The EX27D-MX4 LXR CCD technology provides outstanding spectral response in both visible and near-infrared regions. The high-resolution LXR sensor has low-smear, low-streak and excellent anti-blooming characteristics.

Using minimal mechanical moving parts, the EX27D-MX4 is weather sealed and tested to perform in hot desert conditions. Combined with infrared illuminators, the EX27D-MX4 is ideal for day and night surveillance in desert and tropical environments.

Technical Specifications

Video

Sensor	MX4 Hi-Res Extended Day/Night CCD
Filter	Dual-window mechanical type, IR Pass / IR Cut
Day-Night Switching	Photocell-controlled, automatic
Resolution	540 TVL color / 540 TVL monochrome
Effective Pixels NTSC (H x V)	768 x 494
Effective Pixels PAL (H x V)	752 x 582
Varifocal Lens Options	Varifocal auto-iris 5-50 mm IR-corrected lens
Fixed Lens Options	3.6 mm / 6.0 mm
Signal Processing	Digital Signal Processing (DSP)
Output Signal	1 Vpp composite video, 75 ohm
Daytime Sensitivity	0.02 Lux with F1.4 lens
Night-Time Sensitivity	0 lux with infrared (B/W)
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
S/N Ratio	Greater than 48 dB (AGC off)
Gamma	0.45
Gain Control	AGC

Mechanical

Construction	Robust aluminum casting / extrusion
Weight	1.4 kg (3.1 lbs)
Overall Dimension (H x W x D)	89 x 91 x 222 mm (3.5 x 3.6 x 8.7 in.)
Finish	White powder-coated finish
Mount	Double U-mount supplied with 1/4 in.-20
Sun hood	included

Electrical

Voltage	12 to 24 AC/DC
Consumption	4.5 W max

Environmental

Operational Range	-50°C to +65°C (-58°F to +149°F)
Environment	NEMA 4 compliant

Ordering Information

Accessories

EXMB.015W Pole Mount Adapter Pole Mount Adapter, White	EXMB.015w
EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.023W Wall Bracket Wall Bracket, White	EXMB.023W

EX27N Series All-Weather Cameras



Features

- ▶ **MX4 Extended Day/Night CCD for excellent IR sensitivity, low smear, low streak and excellent antiblooming characteristics**
- ▶ **Photocell-controlled switching between day and night**
- ▶ **Exceptional daytime color, outstanding night-time IR**
- ▶ **Integrated day/night design with 18 LEDs at 840 nm for zero lux effectiveness**
- ▶ **Optimized LED Array for 12 meters (40 feet) of evenly-distributed active infrared night vision**

The EX27MNX is an all-weather day/night camera that incorporates MFP Technology for exceptional day/night performance. Using mechanical filter technology, the EX27MNX delivers brilliant color during the day and outstanding IR sensitivity at night.

The EX27MNX uses LXR CCD technology for outstanding spectral response in both visible and near-infrared regions. The high-resolution sensor produces and amazing 570 TVL in monochrome and 550 TVL in color. As with all LXR-type sensors the video signal is characterized by low-smear, low-streak and excellent anti-blooming characteristics.

An IR-Cut filter eliminates IR bleed during the day to ensure accurate color video. At night, a photocell-controlled IR-Pass filter optimizes night vision performance. Together with a high-efficiency 18-LED infrared illuminator, the EX27MNX delivers 40 feet of evenly-distributed night vision.

The EX27MNX features an all-weather housing, field-proven for successful application in extreme environments. The cast and extruded aluminum housing accommodates a 4-9 mm VF, auto-iris lens for extra installation versatility.

Rugged, compact, power protected and extreme weather-sealed, the EX27MNX is an ideal day/night camera for a wide variety of technical surveillance applications.

Functions

Applications

- Commercial security
- Critical infrastructure
- Homeland security
- Public area surveillance
- Industrial sites
- Ports and harbors
- Schools, colleges and universities
- Outdoor surveillance
- Airports
- Extreme weather environments

Technical Specifications

Video

Sensor	MX4 Hi-Res Extended Day/Night CCD
Effective Pixels NTSC (H x V)	768 x 494
Effective Pixels PAL (H x V)	752 x 582
Day-Night Switching	Photocell-controlled, automatic
Resolution	540 TVL color / 540 TVL mono-chrome
Daytime Sensitivity	0.02 Lux with F1.4 lens
Night-Time Sensitivity	0 lux with infrared (B/W)
S/N Ratio	Greater than 48 dB (AGC off)
Output Signal	1 Vpp composite video, 75 Ohm
Gamma	0.45
Gain Control	AGC
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
LED Type	High-efficiency 850 nm or 940 nm, even distribution IR
Number of LEDs	18

Mechanical

Color	Black
Construction	Robust aluminum casting / extrusion
Weight	1.4 kg (3.1 lbs)
Overall Dimension (H x W x D)	89 x 91 x 222 mm (3.5 x 3.6 x 8.7 in.)

Electrical

Voltage	12 to 24 AC/DC
Consumption	4.5 W or less

Environmental

Operational Range	-50°C to 50°C (-58°F to +122°F)
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Environment	IP66/NEMA 4X compliant
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Ordering Information

Accessories

EXSH.27B Sun Hood	EXSH.27B
Sun Hood, Black	

EXMB.015B Pole Mount Adapter Bracket	EXMB.015B
Pole Mount Adapter, black	

EXMB.023B Wall Bracket	EXMB.023B
Wall Bracket, Black	

EXMB.017B Wall Mount Adapter Bracket	EXMB.017B
Wall Mount Adapter, Black	

EX27 All-Weather Cameras



Features

- ▶ **Compact, weather-sealed housing for performance in extreme environments**
- ▶ **MX4 extended day/night CCD for outstanding IR sensitivity, low smear, low streak and excellent anti-blooming characteristics**
- ▶ **Easy access lens and camera OSD adjustments**
- ▶ **Easily integrated with Extreme infrared illumination for effective 24/7 night vision**

The EX27 is an all-weather camera that includes all of the best features of a plug-and-play camera without compromise to CCD optics and lens quality. The EX27 takes advantage of the latest imaging technology, including high resolution extended CCDs with MFP Technology for exceptional day/night performance.

The EX27 features an all-weather housing constructed of cast and extruded aluminum, field-proven for successful application in extreme environments. The EX27 is compact yet can still accommodate varifocal auto-iris lenses for extra installation versatility and protection from overexposed images.

The integrated VRB cleans and conditions input power to allow 12 VDC or 24 VAC operation while providing protection from surges, transient spikes and other electrical irregularities.

The EX27 is rugged, compact, power protected, weather protected, easily installed and industrially designed. The sleek design sets a new benchmark for the general purpose surveillance camera. Combined with infrared, the EX27 offers outstanding 24/7 performance in day or dark conditions for critical surveillance.

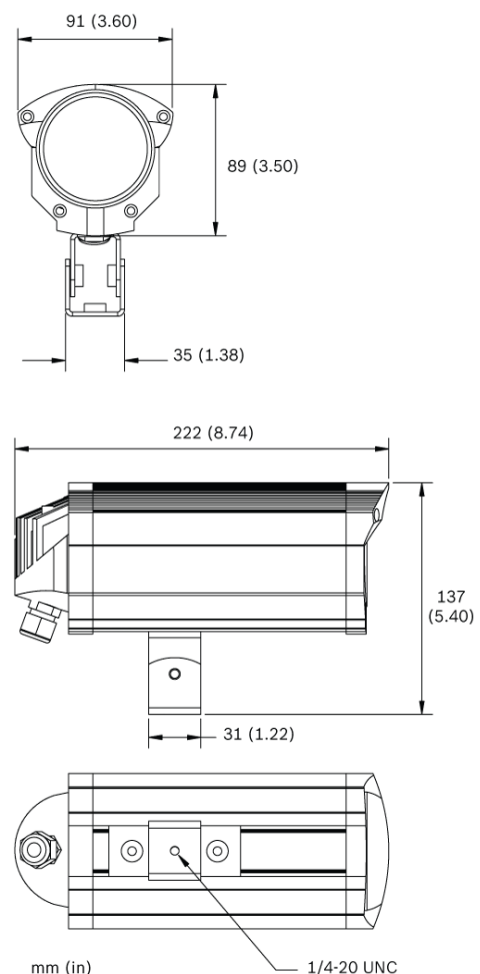
Functions

Applications

- Outdoor surveillance
- Extreme environment
- Ports and harbors
- Commercial campuses
- Critical infrastructure
- Homeland Security
- High-end residential
- School and universities

Installation/Configuration Notes

Dimensions



Technical Specifications

Video

Filter	Dual-window mechanical type, IR Pass / IR Cut
Day/Night Switching	Photocell-controlled, automatic
Photocell	Automatic, sensitivity adjustable
Controls	OSD with joystick operation
Sensor	MX4 Hi-Res Extended Day/Night CCD

Resolution	540 TVL color / 540 TVL mono-chrome
Effective Pixels NTSC (HxV)	768 x 494
Effective Pixels PAL (HxV)	752 x 582
Sensitivity	0.02 lx with F1.4 lens
	0 lx with infrared (B/W)
S/N Ratio	Greater than 48 dB (AGC off)
Output Signal	1 Vpp, 75 ohm
Gamma	0.45
Gain Control	AGC
Electronics Iris	1/60 to 1/100,000 (NTSC)
	1/50 to 1/100,000 (PAL)
Lens	4-9 mm or 9-22 mm IR Corrected

Mechanical

Construction	Robust aluminum casting / extrusion
Window	3/16 inch polycarbonate
Weight	1.4 kg (3.1 lbs)
Overall Dimension (H x W x D)	89 x 91 x 222 mm (3.5 x 3.6 x 8.7 in.)
Finish	Powder coated black (white available)
Mount	Double U-mount supplied with ¼-20

Electrical

Voltage	12 to 24 AC/DC
Consumption	4.5 W maximum
Connection	2.0 m (6.5 ft) composite cable for power and video

Environmental

Operational Range	-50°C to +50°C (58°F to 122°F)
Environment	IP66, NEMA 4X compliant

Ordering Information**Accessories**

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.023B Wall Bracket Wall Bracket, Black	EXMB.023B
EXSH.27B Sun Hood Sun Hood, Black	EXSH.27B

EX14N Series Extreme Environment Integrated Day/Night Camera



Features

- ▶ **Weatherproof design for hot, cold and wet environments**
- ▶ **12 m (40 ft) of active infrared night vision**
- ▶ **Photocell-controlled operation for accurate switching**
- ▶ **Injection molded ABS-Nylon resin enclosure, IP66**
- ▶ **Completely insulated internal chamber**

The EX14N is an all-environment Integrated Day-Night (IDN) camera for extreme weather applications. The simple, effective design allows performance in the most challenging of environmental conditions. The housing is compact, yet large enough for a 4 to 9 mm varifocal lens, the mechanical filter imaging technology and integrated infrared illumination for 12 m (40 ft) Night Vision.

The EX14N incorporates mechanical filter technology for vivid daytime color and exceptional night-time imaging under infrared illumination while maintaining sharp focus under all lighting conditions. The EX14N also features proprietary CCD technology for outstanding spectral response in the near infrared for excellent active-infrared night vision.

A high-efficiency 18-LED spatially optimized infrared array contributes to evenly-distributed infrared illumination. Photocell-control ensures that video and LED switching are accurate. The result is an excellent 24/7 camera, with 40 ft of Night Vision in totally dark environments.

Made of an injection-molded ABS/Nylon resin, the EX14N series is engineered specifically to withstand hot, cold and wet environments. A totally insulated inner chamber eliminates the requirement for internal heaters and blowers. Compliant to IP66, the EX14N series also features an easy-access camera compartment for easy camera/lens adjustments and installation.

Rugged, compact, power protected and extreme weather-sealed, the EX14N Series is an ideal IDN camera for extreme environments in day or dark conditions. The EX14N is available with a varifocal 4 to 9 mm auto-iris lens and comes complete with a nylon wall bracket for quick and easy installation.

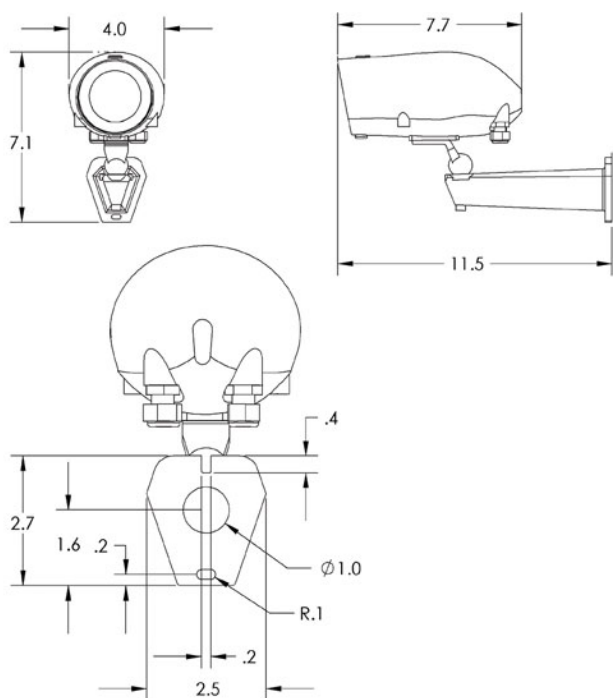
Functions

The camera features:

- Totally weatherproof for hot and cold environments
- Completely insulated internal chamber
- No requirement for internal heater or cooler
- Installer-friendly, easy-access camera compartment
- Varifocal 4 to 9 mm auto-iris lens
- Extreme weather sealed, water resistant and IP66 compliant
- Photocell-controlled operation for accurate switching

Applications

- Wash down applications
- Food processing
- Marine applications
- Artic conditions
- Acid / alkali environment
- Sewage Treatment plants
- Sub-zero weather applications
- Coastal environments
- Chemical facilities
- Ports and harbors
- Cruise ships
- Industrial freezers and refrigerators

Installation/Configuration Notes**Technical Specifications**

Model	EX14MNX
CCD	MX4 LXR Mechanical Filter
Image Sensor	1/3 in LXR CCD
Resolution	540 TVL color 540 TVL monochrome
Effective Pixels	NTSC: 768 x 494 (HxV) (HxV) PAL: 752 x 582 (HxV)
Sensitivity	
Daytime	0.02 lux with F1.4 lens
Night time	0 lux with infrared (B/W)
S/N Ratio	Greater than 48 dB (AGC off)
Video Output	1 Vpp, 75 ohm
Gamma	0.45
Gain Control	AGC (with on/off switch)
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
Voltage Supply	12 to 24 AC/DC
LED Type	High-efficiency 850nm, even distribution IR
Number of LEDs	18
Power Consumption	6.5 W
Internal Heater / Cooler	Not Required
Window	Flame resistant VO-Margard; 50 mm (2.0 in)
Wall Bracket	Included
Color	Black standard (white available by special order)
External Dimensions	180 x 85 x 85 mm (L x W x H)

	7.1 x 3.3 x 3.3 in (L x W x H)
Window Diameter	50 mm (2.0 in)
Weight	0.7 kg (1.5lb) bracket included
Temperature Range Operation	-60°C to +60°C (-76°F to +140°F)
Environmental	IP66 compliant

Ordering Information

EX14MNX8V0408B-N Extreme Environment Integrated Day/Night Camera **EX14MNX8V0408B -N**

1/3 in. extended day/night, 540/540 TVL, 18LED 850 nm, 4-9 mm lens, NTSC

EX14MNX8V0408B-P Extreme Environment Integrated Day/Night Camera **EX14MNX8V0408B -P**

1/3 in. extended day/night, 540/540 TVL, 18LED 850 nm, 4-9 mm lens, PAL

EX14 Extreme Environment Camera



Features

- ▶ Weatherproof and insulated for hot and cold environments
- ▶ Installer-friendly, easy-access camera compartment
- ▶ Extreme weather sealed, waterproof and IP66 compliant
- ▶ Reduced power consumption, no requirement for internal heater or fan
- ▶ Varifocal 4-9 mm or 9-22 mm auto-iris lenses
- ▶ Operating temperature range from -60°C to +60°C

The EX14 is an all-environment camera for harsh weather applications. The simple, effective design allows performance in the most challenging of environmental conditions, including wash-down facilities, corrosive environments and sub-zero temperatures. The housing is compact, yet large enough for a 9-22 mm varifocal lens and mechanical filter imaging technology.

Made of an injection-molded ABS/Nylon resin, the EX14 is engineered specifically to withstand hot, cold and wet environments. An insulated enclosure eliminates the requirement for internal heaters and blowers. Compliant to IP66, the EX14 also features an easy-access camera compartment for easy camera adjustments and installation.

The EX14 is available with varifocal 4-9 mm or 9-22 mm auto-iris lenses and comes complete with a nylon wall bracket for quick and easy installation.

Functions

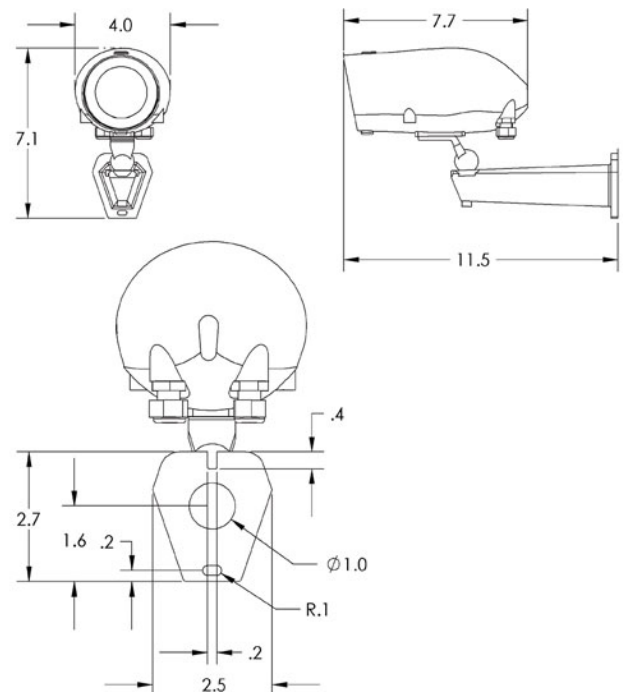
The camera features:

- Weatherproof, IP66 compliant design for reliable performance in the harshest environments
- Insulated body for performance in extreme hot, cold or wet environments
- Installer-friendly, easy-access optical compartment
- Varifocal 4 to 9 mm or 9 to 12 mm auto-iris lens

Applications

- Wash down applications
- Food processing
- Acid / alkali environment
- Sewage treatment plants
- Sub-zero weather applications
- Coastal environments
- Ports and harbors
- Industrial freezers and refrigerators
- Oil rigs
- Cruise ships

Installation/Configuration Notes



Technical Specifications

C7 Hi-Res Color

Image Sensor	1/3 in. Interline SuperHAD
Resolution	500 TVL
Effective Pixels NTSC	768 (H) x 494 (V)
Effective Pixels PAL	768 (H) x 494 (V)
Sensitivity	2.7 Lux at F1.4
S/N Ratio	Greater than 48dB

MX4 Extended Day/Night

Image Sensor	1/3 in. LXR CCD
Resolution	540 TVL color / 540 TVL mono-chrome
Effective Pixels NTSC	768 (H) x 494 (V)
Effective Pixels PAL	752 (H) x 582 (V)
Sensitivity	0.02 Lux with F1.4 lens
S/N Ratio	Greater than 48dB

All Cameras

Video Output	1 Vpp, 75 ohm
Gamma	0.45
Gain Control	AGC (with on/off switch)
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
Voltage Supply	12 to 24 AC/DC
Power Consumption	2 W or less
Internal Heater / Cooler	Not Required
Window	Flame resistant VO-Margard; 50 mm (2.0 in)
Wall Bracket	Included
Color	Black standard (white available by special order)
External Dimensions	180 x 85 x 85 mm (L x W x H) 7.1 x 3.3 x 3.3 in (L x W x H)
Window Diameter	50 mm (2.0 in)
Weight	0.7 kg (1.5lb) bracket included
Operation Temperature Range	-60°C to +60°C (-76°F to +140°F)
Environmental	IP66 compliant

Ordering Information

EX14MX4V0408B-N Extreme Environment Camera 1/3 in. extended day/night, 540/540 TVL, 4-9 mm lens, NTSC	EX14MX4V0408B-N
EX14MX4V0408B-P Extreme Environment Camera 1/3 in. extended day/night, 540/540 TVL, 4-9 mm lens, PAL	EX14MX4V0408B-P
EX14MX4V0922B-N Extreme Environment Camera 1/3 in. extended day/night, 540/540 TVL, 9-22 mm lens, NTSC	EX14MX4V0922B-N
EX14MX4V0922B-P Extreme Environment Camera 1/3 in. extended day/night, 540/540 TVL, 9-22 mm lens, PAL	EX14MX4V0922B-P
EX14C7V0409B-N Extreme Environment Camera 1/3 in. hi-res color, 500 TVL, 4-9 mm lens, NTSC	EX14C7V0409B-N

Ordering Information

EX14C7V0922B-N Extreme Environment Camera 1/3 in. hi-res color, 500TVL, 9-22 mm lens, NTSC	EX14C7V0922B-N
EX14C7V0409B-P Extreme Environment Camera 1/3 in. hi-res color, 500 TVL, 4-9 mm lens, PAL	EX14C7V0409B-P
EX14C7V0922B-P Extreme Environment Camera 1/3 in. hi-res color, 500 TVL, 9-22 mm lens, PAL	EX14C7V0922B-P

EX10 Extreme Environment Camera



Features

- ▶ **Weatherproof and insulated for hot and cold environments**
- ▶ **Installer-friendly, easy-access camera compartment**
- ▶ **Extreme weather sealed, waterproof and IP67 compliant**
- ▶ **Reduced power consumption, no requirement for internal heater or fan**
- ▶ **Operating temperature range from -60°C to +60°C**

The EX10 series is particularly suited for harsh weather applications. The simple, effective design allows performance in the most challenging of environmental conditions, including wash-down facilities, corrosive environments and sub-zero temperatures.

Made of an injection-molded ABS/Nylon resin, the EX10 series is engineered specifically to withstand hot, cold and wet environments. An insulated inner chamber eliminates the requirement for internal heaters and blowers. Compliant to IP67, the EX10 series also features an easy-access camera compartment for easy camera/lens adjustments and installation.

Rugged, compact, power protected and extreme weather-sealed, the EX10 is the ideal camera for harsh environments in day or dark conditions. The EX10 comes complete with a nylon wall bracket for quick and easy installation.

Functions

Applications

- Food processing

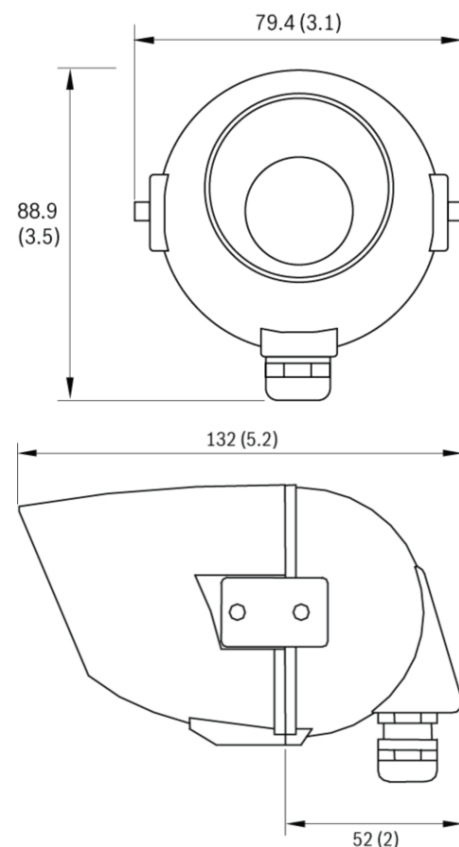
- Marine vessels and marinas
- Clean rooms
- Acid / alkali environments
- Swimming pools
- Sewage treatment plants
- Industrial freezers
- Oil rigs

Certifications and Approvals

CSA Type 6	Outdoor weather rating
CSA C22.2 No 0-M1991	General electrical reqts, part II
CSA C22.2 No 1-M94	Audio, video, and similar equipment
CSA C22.2 No 94-M91	Special purpose enclosures
UL Std No 50	Enclosures for electrical equipment
UL Std No 2044	Commercial CCTV equipment
FCC Class B	

Installation/Configuration Notes

Dimensions



mm (in)

Parts Included

- Universal mounting bracket included

Technical Specifications**C7 Hi-Res Color**

Image Sensor	1/3 in. Interline SuperHAD
Resolution	500 TVL
Effective Pixels NTSC	768 (H) x 494 (V)
Effective Pixels PAL	768 (H) x 494 (V)
Sensitivity	2.7 Lux at F1.4
S/N Ratio	Greater than 48 dB

MX4 Extended Day/Night

Image Sensor	1/3 in. LXR CCD
Resolution	540 TVL color / 540 TVL mono-chrome
Effective Pixels NTSC	768 (H) x 494 (V)
Effective Pixels PAL	752 (H) x 582 (V)
Sensitivity	0.02 Lux with F1.4 lens
S/N Ratio	Greater than 48dB

All Models

Video Output	1 Vpp, 75 ohm
Gamma	0.45
Gain Control	> 18 dB
Electronics Iris	1/60 to 1/100,000 (NTSC) 1/50 to 1/100,000 (PAL)
Voltage Supply	12 to 24 AC/DC
Power Consumption	120 mA at 12 VDC, 1.4 W (max)
Enclosure	Injection-molded nylon
Window	Polycarbonate
Dimensions	132 x 76 mm 5.2 x 3.0 in
Weight	0.375 kg (0.8 lb)
Operation Temperature Range	-60 °C to +60 °C (-76 °F to 140 °F)
Environmental	IP67, NEMA6, NEMA6P compliant

Ordering Information

EX10C704B-N Extreme Environment Camera 1/3 in. hi-res color, 500TVL, 3.6 mm lens, NTSC	EX10C704B-N
EX10C704B-P Extreme Environment Camera 1/3 in. hi-res color, 500TVL, 3.6 mm lens, PAL	EX10C704B-P
EX10MX404B-N Extreme Environment Camera 1/3 in. extended day/night, 540/540TVL, 3.6 mm lens, NTSC	EX10MX404B-N
EX10MX404B-P Extreme Environment Camera 1/3 in. extended day/night, 540/540TVL, 3.6 mm lens, PAL	EX10MX404B-P
Accessories	
BRKU10 U-type Bracket Bracket, U-type for EX10, black	BRKU10

EX72N Explosion-protected Integrated Day/Night Camera



Features

- ▶ **UL/CSA or ATEX certified for explosion-protected performance**
- ▶ **Integrated Day/Night design for 12 m (40 ft) night vision**
- ▶ **Performance optics with mechanical filter technology**
- ▶ **High-strength design can withstand an internal explosion**
- ▶ **Safe for use where explosive gases are normally present**
- ▶ **Vari-focal auto-iris lens options**

The EX72N is a tough, compact, explosion-protected camera with performance optics for effective surveillance in hazardous locations such as oil and gas, and chemical facilities. The EX72N incorporates a Day/ Night CCD with a mechanical filter for outstanding daytime color and 12 m (40 ft) active-IR night vision under low light and no light conditions.

The EX72N is certified for ATEX Zone 1 or NEC Class I, Division 1 environments, the most stringent safety standards for explosion-protected performance. In practical terms, the Class I, Division 1 certifications signify that the EX72N is safe for use even in environments where explosive gases are present under normal operating conditions.

The EX72N incorporates high-strength design, featuring construction of sand-cast, copper-free aluminum strong enough to withstand an internal explosion. Threaded flame paths extinguish burning explosive gases and allow them to exit the housing harmlessly, without risking ignition in the external environment.

By meeting the rigorous requirements for Class I, Division 1 environments, the EX72N assures safe, effective performance at less hazardous Division 2 and Class II locations.

Rated NEMA 4X for both indoor and outdoor use, the EX72N carries a T6 temperature code, the lowest and safest rating. When combined with the optional EX72LED infra-red illuminator, the EX72N provides exceptional 24/7 surveillance.

The EX72N is easy to install into any 12 VDC or 24 VAC system, and is a safe and effective surveillance solution for hazardous locations.

Functions

Applications

- Petroleum processing facilities
- Chemical factories
- Agricultural processing plants
- Refineries
- Munitions storage
- Oil and gas plants
- Fuel storage sites
- Industrial plants
- Nuclear facilities
- Pharmaceutical plants
- Aircraft hangers

Performance Optics

- Performance CCD with mechanical filter technology
- High efficiency LED infrared array
- 12 m (40 ft) active-IR night vision
- Enables effective surveillance in low-light environments
- Sensor provides higher IR sensitivity, low smear, low streaking and excellent anti-blooming characteristics

Compact Ruggedized Construction

- Small, unobtrusive and discreet housing
- Certified CSA Type 4X design for indoor and outdoor performance
- High-strength reinforced aluminum construction strong enough to withstand an internal explosion.
- Threaded flame paths extinguish burning explosive gases, allowing them to exit the housing harmlessly, without risking ignition in the external environment

Installer-Friendly Features

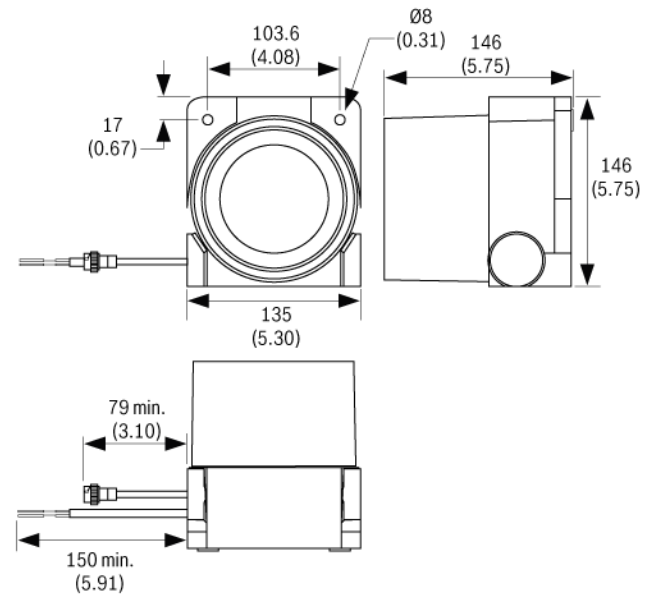
- Varifocal lens 4 to 9 mm or 9 to 22 mm
- 12 VDC / 24 VAC operation
- Optional pan-tilt brackets
- Optional wall and pole adapter plates

Certifications and Approvals

Region	Certification
Europe	CE ATEX
Canada	CSA
CSA/NRTL	LR 113310
Class	2258 / 82 - Process Control Equipment - For Hazardous Locations - Certified to US Standard
	2258 / 02 - Process Control Equipment - For Hazardous Locations
Safety	UL / CSA / ATEX
	UL 508, 16th Edition - Industrial Control Equipment
	UL 698, 11th Edition - Industrial Control Equipment for Use in Hazardous (Classified) Locations
	UL 1203, 3rd Edition - Explosion-Proof and Dust-Ignition-Proof Elec. Eqmt for Use in Hazardous (Classified) Locations
	CSA C22.2 No.0-M1991 - General Requirements - Canadian Electrical Code Part II
	CSA C22.2 No.0.4-04 - Bonding of Electrical Equipment
	CSA C22.2 No.25-M1966 - Enclosures for Use in Class II Groups E, F and G Hazardous Locations
	CSA C22.2 No.30-M1986 - Explosion-proof Enclosures for Use in Class I Hazardous Locations
	CSA C22.2 No.94-M1991 - Special Purpose Enclosures
	CSA C22.2 No.142-M1987 - Process Control Equipment
	Class I, Division 1 and 2, Groups B, C, and D
	Class II, Division 1 and 2, Groups E, F, G
	Class III
	ATEX Ex II 2G certified – Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
	ATEX Ex d IIC T6 certified– Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
Operational	Temp Code T6 (Max. operation ambient 40 °C.)
Environmental	CSA / NEMA TYPE 4X

Installation/Configuration Notes

Dimensions



mm
in.

Flexible Mounting Options

- Wall mounting
 - use a combination of EXMB.072B (EX72 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.017B (wall mount adapter).
- Pole mounting
 - use a combination of EXMB.072B (EX72 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.015B (pole mount adapter).
- Ceiling mounting
 - use a combination of EXMB.072B (EX72 adapter plate) and EXMB.004B (ceiling bracket).

All brackets are available as optional accessories.

Technical Specifications

	EX72MNX Day/Night
CCD	MX4 extended day/night CCD
Resolution	540 TVL color / 540 TVL mono
IR Spectral Response	Enhanced IR Sensitivity
Day Sensitivity	0.02 lux with F1.4 lens
Night Sensitivity	0 lux (works in total darkness)
S/N Ratio	Greater than 48 dB (AGC off)
Night Vision Distance	12 m (40 ft)
Lens	Varifocal 4 to 9 mm or 9 to 22 mm, auto-iris lens
Output Signal	1 Vpp, 75 ohm
Electronics Iris	1/60 to 1/100,000 (EIA)
LED	18 LED high efficiency array, 850 nm
Voltage	12 VDC or 24 VAC
Power Consumption	8 W (max.)
Cabling holes	3/4-inch NPT
Construction	Sand-cast, copper-free aluminum
Flame Path	Threaded joint flame paths

Operation Temperature Range -50 °C to +40 °C (-58 °F to 104 °F)

Weight 1.4 kg (3.1 lb)

Dimensions 145 x 135 x 144 mm (HxWxD)
(5.7 x 5.3 x 5.7 in (HxWxD))

Note To order a CSA/ UL certified product use product codes without the AT suffix. To order an ATEX certified product use product codes with the AT suffix.

Ordering Information

EX72MNX8V0409AT-N Explosion-protected Integrated Day/Night Camera Day/Night, 18 LEDs, 850 nm, 1/3 in CCD, 540 TVL color/ 540 TVL mono, VA 4 to 9 mm lens, bracket, NTSC, ATEX Certified	EX72MNX8V0409A T-N
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EX72MNX8V0409AT-P Explosion-protected Integrated Day/Night Camera Day/Night, 18 LEDs, 850 nm, 1/3 in CCD, 540 TVL color/ 540 TVL mono, VA 4 to 9 mm lens, bracket, PAL, ATEX Certified	EX72MNX8V0409A T-P
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Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
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EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
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EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
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UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
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EX72 Explosion-protected Camera



Features

- ▶ **UL/CSA or ATEX certified for explosion protected performance**
- ▶ **Class I, II, III, Div. 1, 2, Groups B, C, D, E, F, G, T6**
- ▶ **Safe for use where explosive gases are normally present**
- ▶ **High-strength design can withstand an internal explosion**
- ▶ **Compact design with threaded flame paths for maximum safety**
- ▶ **Vari-focal auto-iris lens options**

The EX72 is a tough, compact, explosion-protected camera with performance optics for effective surveillance in hazardous locations such as oil and gas and chemical facilities.

The EX72 is certified for ATEX Zone 1 or NEC Class I, Division 1 environments, the most stringent safety standards for explosion-protected performance. In practical terms, the Class I, Division 1 certifications signify that the EX72 is safe for use even in environments where explosive gases are present under normal operating conditions.

The EX72 incorporates high-strength design, featuring construction of sand-cast, copper-free aluminum strong enough to withstand an internal explosion. Threaded flame paths extinguish burning explosive gases and allow them to exit the housing harmlessly, without risking ignition in the external environment.

By meeting the rigorous requirements for Class I, Division 1 environments, the EX72 assures safe, effective performance at less hazardous Class II and Division 2 locations.

Rated NEMA 4X for both indoor and outdoor use, the EX72 carries a T6 temperature code, the lowest and safest rating. When combined with the optional EX72LED infra-red illuminator, the EX72 provides exceptional 24/7 surveillance. The EX72 is easy to install into any 12 VDC or 24 VAC system, and is a safe and effective surveillance solution for hazardous locations.

Functions

Applications

- Petroleum processing facilities
- Chemical factories
- Agricultural processing plants
- Refineries
- Munitions storage
- Oil and gas plants
- Fuel storage sites
- Industrial plants
- Nuclear facilities
- Pharmaceutical plants
- Aircraft hangers

Performance Optics

- Performance CCD with mechanical filter technology
- Enables effective surveillance in low-light environments
- Sensor provides higher IR sensitivity, low smear, low streaking and excellent anti-blooming characteristics

Compact Ruggedized Construction

- Small, unobtrusive and discreet housing
- Certified CSA Type 4X design for indoor and outdoor performance
- High-strength reinforced aluminum construction strong enough to withstand an internal explosion.
- Threaded flame paths extinguish burning explosive gases, allowing them to exit the housing harmlessly, without risking ignition in the external environment

Installer-Friendly Features

- Varifocal lens 4 to 9 mm or 9 to 22 mm
- 12 VDC / 24 VAC operation
- Optional pan-tilt brackets
- Optional wall and pole adapter plates

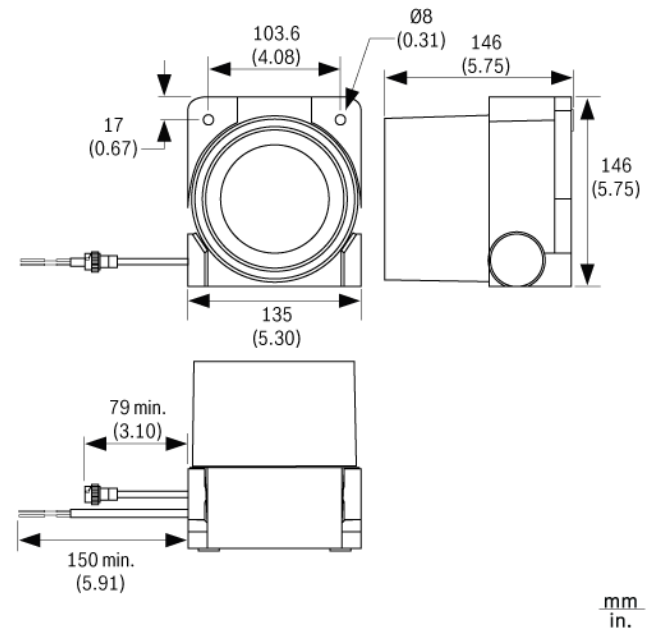
Certifications and Approvals

Region	Certification	
Europe	CE	ATEX
Canada	CSA	

CSA/NRTL	LR 113310
Class	2258 / 82 - Process Control Equipment - For Hazardous Locations - Certified to US Standard 2258 / 02 - Process Control Equipment - For Hazardous Locations
Safety	UL / CSA / ATEX UL 508, 16th Edition - Industrial Control Equipment UL 698, 11th Edition - Industrial Control Equipment for Use in Hazardous (Classified) Locations UL 1203, 2nd Edition - Explosion-Proof and Dust-Ignition-Proof Elec. Eqmt for Use in Hazardous (Classified) Locations CSA C22.2 No.0-M1991 - General Requirements - Canadian Electrical Code Part II CSA C22.2 No.0.4-M1982 - Bonding and Grounding of Electrical Equipment (Protective Grounding) CSA C22.2 No.25-M1966 - Enclosures for Use in Class II Groups E, F and G Hazardous Locations CSA C22.2 No.30-M1986 - Explosion-proof Enclosures for Use in Class I Hazardous Locations CSA C22.2 No.94-M1991 - Special Purpose Enclosures CSA C22.2 No.142-M1987 - Process Control Equipment Class I, Division 1 and 2, Groups B, C, and D Class II, Division 1 and 2, Groups E, F, G Class III ATEX Ex II 2G certified - Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC ATEX Ex d IIC T6 certified - Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
Operational	Temperature Code T6 (At ambient operational temperature of 40°C, the maximum unit surface temperature will not exceed 85°C.)
Environmental	CSA / NEMA TYPE 4X

Installation/Configuration Notes

Dimensions



Flexible Mounting Options

- Wall mounting
 - use a combination of EXMB.072B (EX72 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.017B (wall mount adapter).
- Pole mounting
 - use a combination of EXMB.072B (EX72 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.015B (pole mount adapter).
- Ceiling mounting
 - use a combination of EXMB.072B (EX72 adapter plate) and EXMB.004B (ceiling bracket).

All brackets are available as optional accessories.

Technical Specifications

Color Cameras

CCD	MX4 CCD Mechanical Filter	C7 High Resolution Color
Image Sensor	1/3 in CCD	1/3 in Interline Super-HAD
Resolution	540 TVL color/ 540 TVL mono	500 TVL
Effective Pixels (NTSC)	768 (H) x 494 (V)	768 (H) x 494 (V)
Effective Pixels (PAL)	752 (H) x 582 (V)	768 (H) x 582 (V)
Sensitivity	0.02 lux at F1.4	2.7 lux at F1.4
S/N Ratio	Greater than 48 dB	Greater than 48 dB
Output Signal	0.45	
Gamma	On / Off selectable	
Gain Control	AGC	
Electronics Iris	1/60 to 1/100,000 (NTSC)	1/50 to 1/100,000 (PAL)
Lens	Varifocal 4 to 9 mm or 9 to 22 mm auto-iris lens	

Voltage	12 VDC or 24 VAC
Power consumption	3.9 W (max.)
Cabling holes	Two 3/4-inch NPT conduit entries
Operation Temperature Range	-50 °C to +40 °C (-58 °F to 104 °F)
Weight	1.4 kg (3.1 lbs)
Dimensions	117 x 117 x 99 mm (4.6 x 4.6 x 3.9 in)
Note	To order a CSA/ UL certified product use product codes without the AT suffix. To order an ATEX certified product use product codes with the AT suffix.

Ordering Information

EX72C7V0409AT-N Explosion-protected Camera 1/3 in color CCD, 500 TVL, varifocal 4 to 9 mm lens, NTSC, ATEX Certified	EX72C7V0409AT-N
EX72C7V0409AT-P Explosion-protected Camera 1/3 in color CCD, 500 TVL, varifocal 4 to 9 mm lens, PAL, ATEX Certified	EX72C7V0409AT-P
EX72MX4V0409AT-N Explosion-protected Camera Day/Night 1/3 in CCD, 540/540 TVL, mech. filter, varifocal 4 to 9 mm lens, NTSC, ATEX Certified	EX72MX4V0409AT-N
EX72MX4V0409AT-P Explosion-protected Camera Day/Night 1/3 in CCD, 540/540 TVL, mech. filter, varifocal 4 to 9 mm lens, PAL, ATEX Certified	EX72MX4V0409AT-P
Accessories	
EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50

EX70N Compact Explosion-protected Integrated Day/Night Camera



Features

- ▶ **UL/CSA or ATEX certified for explosion-protected performance**
- ▶ **Class I, II, III, Div. 1, 2, Groups B, C, D, E, F, G, T6, Ex II 2 G, Ex d IIC T6**
- ▶ **Integrated Day/Night design for 12 m (40 ft) night vision**
- ▶ **Performance optics with mechanical filter technology**
- ▶ **High-strength design can withstand an internal explosion**
- ▶ **Small, compact housing, NEMA 4X rated**
- ▶ **Safe for use where explosive gases are normally present**

The EX70N is a small, tough, compact, explosion-protected Integrated Day/Night camera for effective 24/7 surveillance in hazardous locations such as oil and gas, and chemical facilities. The EX70N incorporates a Day/Night CCD with a mechanical filter for outstanding daytime color and 12 m (40 ft) active-IR night vision under low light and no light conditions.

The EX70N is certified for ATEX Zone 1 or NEC Class I, Division 1 environments, the most stringent safety standards for explosion-protected performance. By definition, the Class I, Division 1 certifications signify that the EX70N is safe for use even in environments where explosive gases are present under normal operating conditions.

The EX70N incorporates high-strength design, featuring a construction of sand-cast, copper-free aluminum strong enough to withstand an internal explosion. Threaded flame paths extinguish burning explosive gases and allow them to exit the housing harmlessly, without risking ignition in the external environment.

By meeting the rigorous requirements for Class I, Division 1 environments, the EX70N assures safe, effective performance at less hazardous Division 2 and Class II locations.

Rated NEMA 4X for both indoor and outdoor use, the EX70N carries a T6 temperature code, the lowest and safest rating. The EX70N is available with either a 3.6 mm or 6.0 mm fixed lens and is easy to install into any 12 VDC or 24 VAC system. It is a safe and effective surveillance solution for hazardous locations.

Functions

Performance Optics

- Performance CCD with mechanical filter technology
- High efficiency LED infrared array
- 12 m (40 ft) active-IR night vision
- Enables effective surveillance in low-light environments
- Sensor provides higher IR sensitivity, low smear, low streaking and excellent anti-blooming characteristics

Compact Ruggedized Construction

- Small, unobtrusive and discreet housing
- NEMA 4X design for indoor and outdoor performance
- High-strength reinforced aluminum construction strong enough to withstand an internal explosion.
- Threaded flame paths extinguish burning explosive gases, allowing them to exit the housing harmlessly, without risking ignition in the external environment

Installer-Friendly Features

- Fixed 3.6 mm or 6.0 mm lens
- 12 VDC / 24 VAC operation
- Optional pan-tilt brackets
- Optional wall and pole adapter plates

Applications

- Petroleum processing facilities
- Chemical factories
- Agricultural processing plants
- Refineries
- Munitions storage
- Oil and gas plants
- Fuel storage sites
- Industrial plants
- Nuclear facilities
- Pharmaceutical plants
- Aircraft hangers

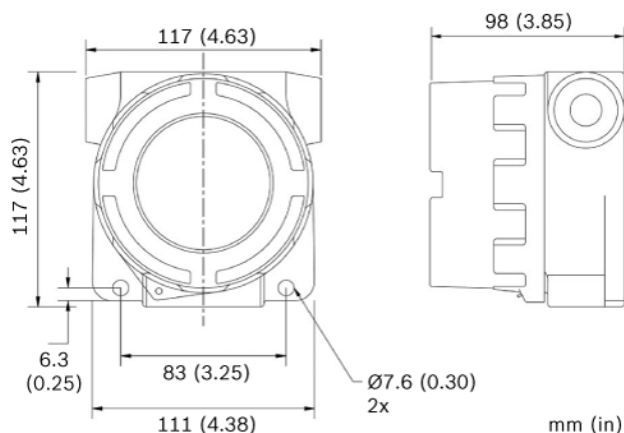
Certifications and Approvals

Region	Certification
Europe	CE

CSA/NRTL	LR 113310
Class	2258 / 82 - Process Control Equipment - For Hazardous Locations - Certified to US Standard
	2258 / 02 - Process Control Equipment - For Hazardous Locations
Safety	UL / CSA / ATEX
	UL 508, 16th Edition - Industrial Control Equipment
	UL 698, 11th Edition - Industrial Control Equipment for Use in Hazardous (Classified) Locations
	UL 1203, 3rd Edition - Explosion-Proof and Dust-Ignition-Proof Elec. Eqmt for Use in Hazardous (Classified) Locations
	CSA C22.2 No.0-M1991 - General Requirements - Canadian Electrical Code Part II
	CSA C22.2 No.0.4-M1982 - Bonding and Grounding of Electrical Equipment (Protective Grounding)
	CSA C22.2 No.25-M1966 - Enclosures for Use in Class II Groups E, F and G Hazardous Locations
	CSA C22.2 No.30-M1986 - Explosion-proof Enclosures for Use in Class I Hazardous Locations
	CSA C22.2 No.94-M1991 - Special Purpose Enclosures
	CSA C22.2 No.142-M1987 - Process Control Equipment
	Class I, Division 1 and 2, Groups B, C, and D
	Class II, Division 1 and 2, Groups E, F, G
	Class III
	ATEX Ex II 2G certified – Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
	ATEX Ex d IIC T6 certified – Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
Operational	Temp Code T6 (Max. operation ambient 40 °C.)
Environmental	CSA / NEMA TYPE 4X

Installation/Configuration Notes

Dimensions



Flexible Mounting Options

- Wall mounting

- use a combination of EXMB.070B (EX70 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.017B (wall mount adapter).
- Pole mounting
 - use a combination of EXMB.070B (EX70 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.015B (pole mount adapter).
- Ceiling mounting
 - use a combination of EXMB.070B (EX70 adapter plate) and EXMB.002B (ceiling bracket).

All brackets are available as optional accessories.

Technical Specifications

	EX70MNX Day/Night
CCD	1/3 in. MX4 extended day/night CCD
Resolution	540 TVL color / 540 TVL mono
IR Spectral Response	Enhanced IR Sensitivity
Day Sensitivity	0.02 lx with F1.4 lens
Night Sensitivity	0 lx (works in total darkness)
S/N Ratio	Greater than 48 dB (AGC off)
Night Vision Distance	12 m (40 ft)
Lens	3.6 mm or 6.0 mm fixed lens
Output Signal	1 Vpp, 75 ohm
Electronics Iris	1/60 to 1/100,000 (EIA)
LED	18 LED high efficiency array, 850 nm
Voltage	12 - 24 VAC (50/60 Hz) 12 - 24 VDC
Power consumption	8.0 W max.
Cabling holes	2x 3/4 in. NPT
Construction	Sand-cast, copper-free aluminum
Flame Path	Threaded joint flame paths
Operation Temperature Range	-50 °C to +40 °C (-58 °F to 104 °F)
Weight	1.4 kg (3.1 lb)
Dimensions	117 x 117 x 99 mm (HxWxD) (4.6 x 4.6 x 3.9 in (HxWxD))

Note

To order a CSA/ UL certified product use product codes without the AT suffix. To order an ATEX certified product use product codes with the AT suffix.

Ordering Information

EX70MNX804AT-N Compact, Explosion-protected Integrated Day/Night Camera Day/Night, 18 LEDs, 850 nm, 1/3 in CCD, 540 TVL color/ 540 TVL mono, 3.6 mm lens, ATEX, NTSC	EX70MNX804AT-N
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EX70MNX804AT-P Compact, Explosion-protected Integrated Day/Night Camera Day/Night, 18 LEDs, 850 nm, 1/3 in CCD, 540 TVL color/ 540 TVL mono, 3.6 mm lens, ATEX, PAL	EX70MNX804AT-P
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Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
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EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
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EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
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UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
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EX70 Compact Explosion-protected Camera



Features

- ▶ **UL/CSA or ATEX certified for explosion-protected performance**
- ▶ **Class I, II, III, Div. 1, 2, Groups B, C, D, E, F, G, T6, Ex II 2 G, Ex d IIC T6**
- ▶ **Performance optics with mechanical filter technology**
- ▶ **High-strength design can withstand an internal explosion**
- ▶ **Small, compact housing, NEMA 4X rated**
- ▶ **Safe for use where explosive gases are normally present**

The EX70 is a small, tough, compact, explosion-protected camera with performance optics for safe, effective surveillance in hazardous locations such as in oil and gas, and chemical facilities.

The EX70 is certified for ATEX Zone 1 or NEC Class I, Division 1 environments, the most stringent safety standards for explosion-protected performance. By definition, the Class I, Division 1 certifications signify that the EX70 is safe for use even in environments where explosive gases are present under normal operating conditions.

The EX70 incorporates high-strength design, featuring a construction of sand-cast, copper-free aluminum, strong enough to withstand an internal explosion. Threaded flame paths extinguish burning explosive gases and allow them to exit the housing harmlessly, without risking ignition in the external environment.

By meeting the rigorous requirements for Class I, Division 1 environments, the EX70 assures safe, effective performance at less hazardous Division 2 and Class II locations.

Rated NEMA 4X for both indoor and outdoor use, the EX70 carries a T6 temperature code, the lowest and safest rating. The EX70 is available with either a 3.6 mm or 6.0 mm fixed lens and is easy to install into any 12 VDC or 24 VAC system. It is a safe and effective surveillance solution for hazardous locations.

Functions

Performance Optics

- Performance CCD with mechanical filter technology
- Enables effective surveillance in low-light environments
- Sensor provides higher IR sensitivity, low smear, low streaking and excellent anti-blooming characteristics

Compact Ruggedized Construction

- Small, unobtrusive and discreet housing
- NEMA 4X design for indoor and outdoor performance
- High-strength reinforced aluminum construction strong enough to withstand an internal explosion.
- Threaded flame paths extinguish burning explosive gases, allowing them to exit the housing harmlessly without risking ignition in the external environment

Installer-Friendly Features

- Fixed 3.6 mm or 6.0 mm lens
- 12 VDC / 24 VAC operation
- Optional pan-tilt brackets
- Optional wall and pole adapter plates

Applications

- Petroleum processing facilities
- Chemical factories
- Agricultural processing plants
- Refineries
- Munitions storage
- Oil and gas plants
- Fuel storage sites
- Industrial plants
- Nuclear facilities
- Pharmaceutical plants
- Aircraft hangers

Certifications and Approvals

Region	Certification
Europe	CE

CSA/NRTL	LR 113310
Class	2258 / 82 – Process Control Equipment – For Hazardous Locations – Certified to US Standard 2258 / 02 – Process Control Equipment – For Hazardous Locations
Safety	UL / CSA / ATEX UL 508, 16th Edition – Industrial Control Equipment UL 698, 11th Edition – Industrial Control Equipment for Use in Hazardous (Classified) Locations UL 1203, 2nd Edition – Explosion-Proof and Dust-Ignition-Proof Elec. Eqmt for Use in Hazardous (Classified) Locations CSA C22.2 No.0-M1991 – General Requirements – Canadian Electrical Code Part II CSA C22.2 No.0.4-M1982 – Bonding and Grounding of Electrical Equipment (Protective Grounding) CSA C22.2 No.25-M1966 – Enclosures for Use in Class II Groups E, F and G Hazardous Locations CSA C22.2 No.30-M1986 – Explosion-proof Enclosures for Use in Class I Hazardous Locations CSA C22.2 No.94-M1991 – Special Purpose Enclosures CSA C22.2 No.142-M1987 – Process Control Equipment Class I, Division 1 and 2, Groups B, C, and D Class II, Division 1 and 2, Groups E, F, G Class III ATEX Ex II 2G certified – Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC ATEX Ex d IIC T6 certified – Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
Operational	Temperature Code T6 (At ambient operational temperature of 40°C, the maximum unit surface temperature will not exceed 85°C.)
Environmental	CSA / NEMA TYPE 4X

- use a combination of EXMB.070B (EX70 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.017B (wall mount adapter).
- Pole mounting
 - use a combination of EXMB.070B (EX70 adapter plate), EXMB.028B (pan/tilt bracket) and EXMB.015B (pole mount adapter).
- Ceiling mounting
 - use a combination of EXMB.070B (EX70 adapter plate) and EXMB.002B (ceiling bracket).

All brackets are available as optional accessories.

Technical Specifications

Color Cameras

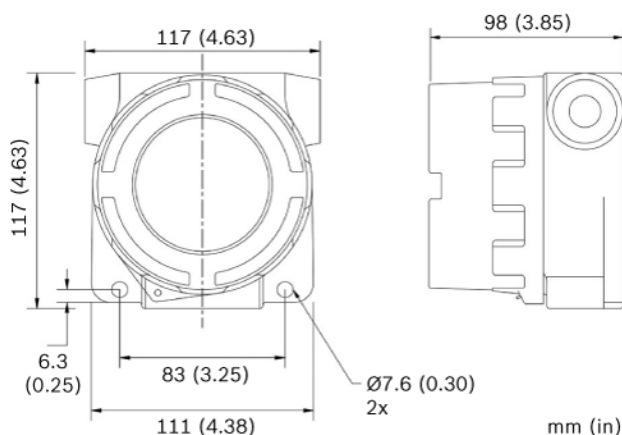
CCD	MX4 CCD Mechanical Filter	C7 High Resolution Color
Image Sensor	1/3 in CCD	1/3 in Interline Super-HAD
Resolution	540 TVL color/ 540 TVL mono	500 TVL
Effective Pixels (NTSC)	768 (H) x 494 (V)	768 (H) x 494 (V)
Effective Pixels (PAL)	752 (H) x 582 (V)	768 (H) x 582 (V)
Sensitivity	0.02 lx at F1.4	2.7 lx at F1.4
S/N Ratio	Greater than 48 dB	Greater than 48 dB
Output Signal	1 Vpp, 75 ohm	
BLC	On / Off selectable	
Gain Control	AGC automatic	
Electronics Iris	1/60 to 1/100,000 (NTSC)	1/50 to 1/100,000 (PAL)
Voltage	12 - 24 VAC (50/60 Hz) 12 - 24 VDC	
Power consumption	3.9 W max.	
Operation Temperature Range	-50 °C to +40 °C (-58 °F to 104 °F)	
Weight	1.4 kg (3.1 lbs)	
Dimensions	117 x 117 x 99 mm (4.6 x 4.6 x 3.9 in)	
Construction	Powder-coated copper-free cast aluminum with two 3/4-inch NPT conduit entries	

Note

To order a CSA/ UL certified product use product codes without the AT suffix. To order an ATEX certified product use product codes with the AT suffix.

Installation/Configuration Notes

Dimensions



Flexible Mounting Options

- Wall mounting

Ordering Information**EX70MX404AT-N Compact, Explosion-protected Camera** **EX70MX404AT-N**

Day/Night 1/3 in CCD, 540/540 TVL, mech. filter, 3.6 mm fixed lens, NTSC, ATEX Certified

EX70MX404AT-P Compact, Explosion-protected Camera **EX70MX404AT-P**

Day/Night 1/3 in CCD, 540/540 TVL, mech. filter, 3.6 mm fixed lens, PAL, ATEX Certified

EX70C704AT-N Compact, Explosion-protected Camera **EX70C704AT-N**

1/3 in color CCD, 500 TVL, 3.6 mm fixed lens, NTSC, ATEX Certified

EX70C704AT-P Compact, Explosion-protected Camera **EX70C704AT-P**

1/3 in color CCD, 500 TVL, 3.6 mm fixed lens, PAL, ATEX Certified

Accessories**EXMB.015B Pole Mount Adapter Bracket** **EXMB.015B**

Pole Mount Adapter, black

EXMB.017B Wall Mount Adapter Bracket **EXMB.017B**

Wall Mount Adapter, Black

EXMB.028B Cable Managed Wall Bracket **EXMB.028B**

Cable-managed arm bracket, black

UPA-2420-50 Power Supply **UPA-2420-50**

220 VAC, 50 Hz, 24 VAC, 20 VA Out

EX49N Series Conical No-Grip Dome Camera



Features

- ▶ **Ultra vandal-resistant construction**
- ▶ **Conical No-Grip design impossible to grip or hang from, ideal for use in prisons and hospitals**
- ▶ **Virtually zero focus shift from color to IR modes**
- ▶ **12 m (40 ft) of evenly-distributed night vision**
- ▶ **Weather-sealed; designed to NEMA 4X**
- ▶ **Reliable performance in -40°C to +60°C (-40°F to +140°F) temperature range**

The EX49N Conical No-Grip domes are designed to be virtually impossible to grip or hang from. In high-risk areas, such as hospitals or prisons, the Integrated Day/Night cameras help prevent at-risk persons from self-inflicted harm. The EX49N is ultra vandal-resistant and engineered for reliability and 24/7 night vision performance to 12 m (40 ft).

Using a dual window IR-Cut and IR-Pass filter, the EX49N camera delivers brilliant color during day and sensitivity to infrared at night. Both ensure virtually zero focus shift between color and infrared modes, allowing sharp focus under all lighting conditions. The EX49N produces video signal characterized by low-smear, low-streak and excellent anti-blooming characteristics for effective active-infrared night vision.

The EX49N also uses a Video Patch Lead (VPL) for convenient installations. An optional Video Patch Connector (VPC) plugs into the VPL at the camera side. With this feature, installers can connect portable LCD monitors for instant video confirmation of camera positioning.

The EX49N features base construction of CNC machined anodized aluminum. Anodized aluminum is an incredibly durable material with high corrosion and heat resistance. Unlike other finishes, anodized aluminum has astounding chemical stability and will resist changes to color or appearance, even under heavy exposure to ultraviolet rays. The one-piece CNC fabrication process ensures the highest degree of precision and unyielding mechanical strength.

A polycarbonate dome of 3 mm thickness is utilized to protect internal camera components. Resistant to impact, fire, heat & UV, the polycarbonate dome is guaranteed unbreakable in the face of even the most vicious attacks. The weather-sealed EX49N is specified for performance in temperatures ranging from -40°C to +60°C (-40°F to +140°F).

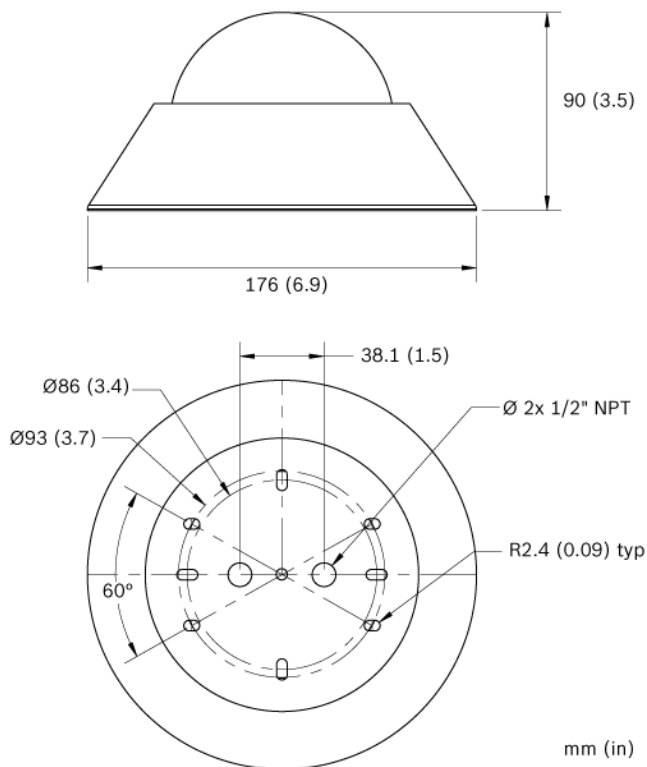
Functions

Applications

- Prisons and correctional facilities
- Night-time surveillance
- Zero-Lux environments
- Retail, schools, hospitals
- Commercial sites
- Hotels and gated communities
- Transportation hubs
- Restaurants / bars
- Retail establishments
- Industrial parks
- Banks
- Hospitals
- Casinos
- Corporate campuses
- Schools, colleges and universities
- Vandal-prone locations

Certifications and Approvals

CSA Type 4X	Outdoor Weather Rating
CSA C22.2 No 0-M1991	General Electrical Requirements, Part II
CSA C22.2 No 1-M94	Audio, Video, and Similar Equipment
CSA C22.2 No 94-M91	Special Purpose Enclosures
UL Std No 50	Enclosures for Electrical Equipment
UL Std No 2044	Commercial CCTV Equipment
FCC Class B	Applicable Health Care Facility Requirements

Installation/Configuration Notes**Dimensions****Technical Specifications**

CCD	MX4 extended day/night CCD
Effective Pixels NTSC	768 (H) x 494 (V)
Effective Pixels PAL	752 (H) x 582 (V)
Resolution	540 TVL color / 540 TVL mono
Daytime Sensitivity	0.02 Lux with F1.4 lens
Night-time Sensitivity	0.0 Lux, works in total darkness
S/N Ratio	Greater than 48 dB
Electronic Shutter	Up to 1/100,000 s
Gamma	0.45
Video Output	1 Vpp, 75 Ohm
Voltage Regulation	Dual VRB design for enhanced electronic stability
Voltage Supply	12-24 VAC (50/60 Hz) 12-24 VDC
Power Consumption	8 W Max.
Operational Range	-40°C to +60°C (-40°F to +140°F)
Humidity Range	Up to 85% relative humidity
Base Construction	CNC Anodized Aluminum
Overall Dimension (including bottom gasket)	176 x 91 mm (6.93 x 3.58 in)
Dome Construction	4 in. Semi-Spherical Polycarbonate
Dome Thickness	3 mm (1/8 in)
Gimbal	Pan-Tilt-Twist for easy installation
Day-Night Switching	Photocell-controlled, automatic

LEDs	High-efficiency, spatially optimized, 850 nm or 940 nm
Number of LEDs	18
Weight	1.4 kg (3 lbs)

Ordering Information

EX49MNX803BC-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 850 nm IR, clear dome, black base, NTSC	EX49MNX803BC-N
EX49MNX803BC-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 850 nm IR, clear dome, black base, PAL	EX49MNX803BC-P
EX49MNX803BH-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 850 nm IR, tint dome, black base, NTSC	EX49MNX803BH-N
EX49MNX803BH-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 850 nm IR, tint dome, black base, PAL	EX49MNX803bh-p
EX49MNX903BC-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 940 nm IR, clear dome, black base, NTSC	EX49MNX903BC-N
EX49MNX903BC-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 940 nm IR, clear dome, black base, PAL	EX49MNX903BC-P
EX49MNX903BH-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 940 nm IR, tint dome, black base, NTSC	EX49MNX903BH-N
EX49MNX903BH-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 2.9 mm lens, 940 nm IR, tint dome, black base, PAL	EX49MNX903BH-P
EX49MNX806BC-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 850 nm IR, clear dome, black base, NTSC	EX49MNX806BC-N
EX49MNX806BC-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 850 nm IR, clear dome, black base, PAL	EX49MNX806BC-P

Ordering Information	
EX49MNX806BH-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 850 nm IR, tint dome, black base, NTSC	EX49MNX806BH-N
EX49MNX806BH-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 850 nm IR, tint dome, black base, PAL	EX49MNX806BH-P
EX49MNX906BC-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 940 nm IR, clear dome, black base, NTSC	EX49MNX906BC-N
EX49MNX906BC-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 940 nm IR, clear dome, black base, PAL	EX49MNX906BC-P
EX49MNX906BH-N Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 940 nm IR, tint dome, black base, NTSC	EX49MNX906BH-N
EX49MNX906BH-P Conical No-Grip Dome Camera Extreme dome, extended day/night, 540 TVL, 6 mm lens, 940 nm IR, tint dome, black base, PAL	EX49MNX906BH-P
Accessories	
EX-VPC Video Patch Connector Video patch connector for EX40 and EX49	EX-VPC
EX-Dome-C Clear replacement dome for EX40/49	EX-Dome-C
EX-Dome-H Half-tint replacement dome for EX40/49	EX-Dome-H

EX49 Series Conical No-Grip Dome Camera



Features

- ▶ **Ultra-vandal resistant construction**
- ▶ **Conical No-Grip design impossible to grip or hang from, ideal for use in prisons and hospitals**
- ▶ **Weather-sealed; designed to NEMA 4X**
- ▶ **Reliable performance in -40°C to +60°C (-40°F to +140°F) temperature range**
- ▶ **UL/CSA certified**
- ▶ **2.8-10 mm varifocal auto-iris lens**

The EX49 Conical No-Grip dome is designed to be virtually impossible to grip or hang from. In high-risk areas, such as hospitals or prisons, the camera helps to prevent at-risk persons from self-inflicted harm. The EX49 is totally vandal-resistant and engineered for reliability and performance.

The dome is packed with installer-friendly features, including a Video Patch Lead (VPL) for quick connection to the optional Video Patch Connector (VPC) allowing a portable monitor to be used for setup and troubleshooting. The proprietary Pan-Tilt-Twist gimbal allows versatile positioning of the CCD and lens and instant centering of the video image. Internal fastening hardware is thermally and mechanically optimized for enhanced reliability.

The EX49 features base construction of CNC machined anodized aluminum, an incredibly durable material with high corrosion resistance and heat-resistant. Unlike other finishes, anodized aluminum has astounding chemical stability and will resist changes to color or appearance, even under heavy exposure to ultraviolet rays.

A polycarbonate dome of 3 mm thickness is utilized to protect the internal camera components. Resistant to impact, fire, heat and UV, the polycarbonate dome is guaranteed unbreakable in the face of even the most vicious attacks by vandals. The weather-sealed EX49 is specified for performance in temperatures ranging from -40°C to +60°C (-40°F to +140°F) and certified for safe, legal installs.

Functions

Applications

- Prisons and correctional facilities
- Retail, schools, hospitals
- Commercial sites
- Hotels and gated communities
- Transportation hubs
- Restaurants / bars
- Retail establishments
- Industrial parks
- Banks
- Hospitals
- Casinos
- Corporate campuses
- Schools, colleges and universities
- Vandal-prone locations

Certifications and Approvals

CSA Type 4X	Outdoor Weather Rating
CSA C22.2 No 0-M1991	General Electrical Requirements, Part II
CSA C22.2 No 1-M94	Audio, Video, and Similar Equipment
CSA C22.2 No 94-M91	Special Purpose Enclosures
UL Std No 50	Enclosures for Electrical Equipment
UL Std No 2044	Commercial CCTV Equipment
FCC Class B	Applicable Health Care Facility Requirements

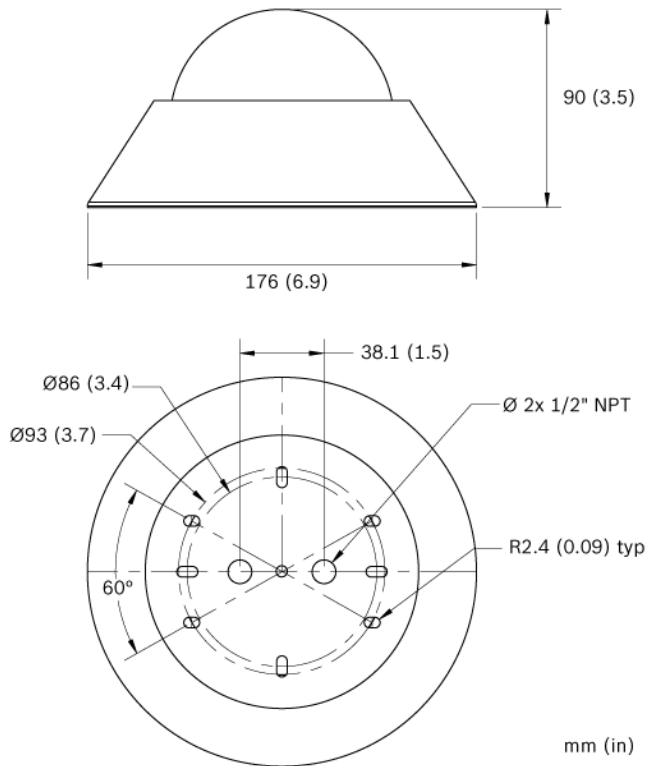
Installation/Configuration Notes**Dimensions****Technical Specifications**

Image Sensor	MX4 Hi-Resolution Day/Night CCD	C7 High Resolution Color
Resolution	540 TVL color / 540 TVL mono	500 TVL
Effective Pixels NTSC	768(H) x 494(V)	768 (H) x 494 (V)
Effective Pixels PAL	752(H) x 582(V)	752 (H) x 582 (V)
Daytime Sensitivity	0.02 lux with F1.4 lens	2.7 lux at F1.4
Night-time Sensitivity	0 lux with infrared (B/W)	N/A
S/N Ratio	Greater than 48dB (AGC off)	Greater than 48dB
Output Signal	1 Vpp, 75 Ohm	
Gamma	0.45	
BLC	On / Off selectable	
Gain Control	AGC automatic	
Electronics Iris	1/60 to 1/100,000 (NTSC) • 1/50 to 1/100,000 (PAL)	
Gimbal	Pan-Tilt-Twist for easy installation	
Voltage	12-24 VAC (50/60 Hz) 12-24 VDC	
Power Draw	5 W Max.	
Dome Construction	Polycarbonate dome, 3 mm thick	
Base Construction	CNC Anodized Aluminum	
Weight	1.4 kg (3 lb)	

Operational Range	-40°C to +60°C (-40°F to 140°F)
Overall Dimension (including bottom gasket)	176 x 91 mm (6.93 x 3.58 in)

Ordering Information

EX49C7V0310BH-P Ultra Vandal-Proof Dome Extreme dome, 1/3-inch color, 500 TVL, 2.8-10 mm lens, tint dome, black base, PAL	EX49C7V0310BH-P
EX49C7V0310BH-N Ultra Vandal-Proof Dome Extreme dome, 1/3-inch color, 500 TVL, 2.8-10 mm lens, tint dome, black base, NTSC	EX49C7V0310BH-N
EX49C7V0310BC-P Ultra Vandal-Proof Dome Extreme dome, 1/3-inch color, 500 TVL, 2.8-10 mm lens, clear dome, black base, PAL	EX49C7V0310BC-P
EX49C7V0310BC-N Ultra Vandal-Proof Dome Extreme dome, 1/3-inch color, 500 TVL, 2.8-10 mm lens, clear dome, black base, NTSC	EX49C7V0310BC-N
EX49MX4V0310BH-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, tint dome, black base, PAL	EX49MX4V0310BH-P
EX49MX4V0310BH-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, tint dome, black base, NTSC	EX49MX4V0310BH-N
EX49MX4V0310BC-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, clear dome, black base, PAL	EX49MX4V0310BC-P
EX49MX4V0310BC-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, clear dome, black base, NTSC	EX49MX4V0310BC-N

Accessories

EX-VPC Video Patch Connector Video patch connector for EX40 and EX49	EX-VPC
EX-Dome-C Clear replacement dome for EX40/49	EX-Dome-C
EX-Dome-H Half-tint replacement dome for EX40/49	EX-Dome-H

EX40N Series Ultra Vandal-Proof Dome



Features

- ▶ **Ultra vandal-resistant construction**
- ▶ **Virtually zero focus shift from color to IR modes**
- ▶ **12 m (40 ft) of evenly-distributed night vision**
- ▶ **Conduit compatible for easy installation**
- ▶ **Weather-sealed; designed to NEMA 4X**
- ▶ **Reliable performance in -40°C to +60°C (-40°F to +140°F) temperature range**
- ▶ **2.8-10 mm varifocal auto-iris lens**

The EX40N series brings the latest imaging technologies into the world of Integrated Day-Night surveillance for truly outstanding 24/7 effectiveness.

Using a dual window IR-Cut and IR-Pass filter, the EX40N delivers brilliant color during day and sensitivity to infrared at night. Both ensure virtually zero focus shift between color and infrared modes, allowing sharp focus under all lighting conditions.

The EX40N uses MX4 CCD technology for outstanding spectral response in the near infrared. The video signal is characterized by low-smear, low-streak and excellent anti-blooming characteristics for excellent active-IR night vision.

Integrated Day-Night design with spatially optimized LED geometry and optical lens shield deliver 12 meters (40 feet) of evenly-distributed Night Vision with virtually no internal reflection or halo effects. The varifocal, auto-iris lens not only allows easy installation, but also helps to prevent washed-out images under IR.

The EX40N uses a Video Patch Lead (VPL) for convenient installation. An optional Video Patch Connector (VPC) plugs into the VPL at the camera side. With this feature, installers can connect portable LCD monitors for instant video confirmation of camera positioning.

Vandal-resistant, all-weather ready and packed with practical enhancements such as a Pan-Tilt-Twist gimbal, conduit compatibility, and a 2.8-10 mm varifocal auto-iris lens, the EX40N is ideal for a wide variety of applications. Constructed from anodized aluminum, tested for performance in temperatures ranging from -40°C to +60°C (-40°F to +140°F).

Functions

Applications

- Night-time surveillance
- Zero-lux environments
- Commercial sites
- Hotels and casinos
- Transportation hubs
- Restaurants / bars
- Industrial parks
- Banks
- Prisons and correctional facilities
- Schools, colleges and universities
- Vandal-prone locations

Technical Specifications

Image Sensor	MX4 Hi-Resolution Extended Day/Night CCD
Resolution	540 TVL color / 540 TVL mono
Effective Pixels (NTSC)	768(H) x 494(V)
Effective Pixels (PAL)	752(H) x 582(V)
Daytime Sensitivity	0.02 Lux with F1.4 lens
Night-time Sensitivity	0 lux with infrared (B/W)
S/N Ratio	Greater than 48dB (AGC off)
Filter	Dual-window IR-Pass / IR-Cut mechanical type
Output Signal	1Vp-p, 75 Ohm
Gamma	0.45
Gain Control	AGC (with on/off switch)
Electronics Iris	1/60 to 1/100,000 (NTSC) • 1/50 to 1/100,000 (PAL)
Gimbal	Pan-Tilt-Twist for easy installation
LEDs	High-efficiency, spatially optimized, 850 nm or 940 nm
Number of LEDs	18
Day-Night Switching	Photocell-controlled, automatic
Voltage Regulation	Dual VRB design for enhanced electronic stability
Voltage Supply	12-24 VAC (50/60 Hz) 12-24 VDC
Power Draw	8 W Max.

Dome Construction	Polycarbonate dome, semi-spherical, 3mm thick
Base Construction	CNC Anodized Aluminum
Weight	610 g (1.3 lbs)
Operational Range	-40°C to +60°C (-40°F to 140°F)
Humidity Range	Up to 85% relative humidity
Overall Dimension	118 mm d (4.6 in) Diameter / 100 mm (3.92 in) H

Ordering Information

EX40MNX8V0310BC-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 850 nm IR, clear dome, black base, NTSC	EX40MNX8V0310B C-N
EX40MNX8V0310BC-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 850 nm IR, clear dome, black base, PAL	EX40MNX8V0310B C-P
EX40MNX8V0310BH-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 850 nm IR, tint dome, black base, NTSC	EX40MNX8V0310B H-N
EX40MNX8V0310BH-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 850 nm IR, tint dome, black base, PAL	EX40MNX8V0310B H-P
EX40MNX9V0310BC-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 940 nm IR, clear dome, black base, NTSC	EX40MNX9V0310B C-N
EX40MNX9V0310BC-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 940 nm IR, clear dome, black base, PAL	EX40MNX9V0310B C-P
EX40MNX9V0310BH-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 940 nm IR, tint dome, black base, NTSC	EX40MNX9V0310B H-N
EX40MNX9V0310BH-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, 940 nm IR, tint dome, black base, PAL	EX40MNX9V0310B H-P

Accessories

EXMB.045B Dome Pendant Bracket Dome Pendant Bracket for EX40(N) and EX46LED, black	EXMB.045B
EX-VPC Video Patch Connector Video patch connector for EX40 and EX49	EX-VPC
EX-Dome-C Clear replacement dome for EX40/49	EX-Dome-C

Ordering Information

EX-Dome-H Half-tint replacement dome for EX40/49	EX-Dome-H
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EX40 Series Ultra Vandal-Proof Dome



Features

- ▶ **Ultra vandal-resistant construction**
- ▶ **Conduit compatible for easy installation**
- ▶ **Weather-sealed; designed to NEMA 4X**
- ▶ **Reliable performance in -40°C to +60°C (-40°F to +140°F) temperature range**
- ▶ **2.8-10 mm varifocal auto-iris lens**
- ▶ **Pan-Tilt-Twist gimbal for ease of installation**

The EX40 is an ultra vandal-resistant fixed dome camera with full-sized housing, high-performance 1/3 in. CCD sensors and varifocal, auto-iris lenses for excellent CCTV surveillance in a wide variety of applications.

The dome is packed with installer-friendly features, including a Video Patch Lead (VPL) for quick connection to the optional Video Patch Connector (VPC), allowing a portable monitor to be used for setup and troubleshooting. The proprietary Pan-Tilt-Twist gimbal allows versatile positioning of the CCD and lens and instant centering of the video image. Internal fastening hardware is thermally and mechanically optimized for enhanced reliability. EX40 domes are conduit compatible for easy installation onto standard electrical fittings. Varifocal, auto-iris lenses ensure excellent optical performance.

The EX40 features base construction of CNC machined anodized aluminum, an incredibly durable material with high corrosion and heat-resistance. Unlike other finishes, anodized aluminum has astounding chemical stability and will resist changes to color or appearance, even under heavy exposure to ultraviolet rays.

A polycarbonate dome of 3mm thickness is utilized to protect the internal camera components. Resistant to impact, fire, heat and UV, the polycarbonate dome is guaranteed unbreakable in the face of even the most vicious attacks by vandals. The weather-sealed EX40 is specified for performance in temperatures ranging from -40°C to +60°C (-40°F to +140°F).

Functions

Applications

- Night-time surveillance
- Zero-lux environments
- Commercial sites
- Hotels and casinos
- Transportation hubs
- Restaurants / bars
- Industrial parks
- Banks
- Prisons and correctional facilities
- Schools, colleges and universities
- Vandal-prone locations

Technical Specifications

Image Sensor	MX4 Hi-Resolution Day/ Night CCD	C7 High Resolution Color
Resolution	540 TVL color / 540 TVL mono	500 TVL
Effective Pixels NTSC	768(H) x 494(V)	768 (H) x 494 (V)
Effective Pixels PAL	752(H) x 582(V)	752 (H) x 582 (V)
Daytime Sensitivity	0.02 lux with F1.4 lens	2.7 lux at F1.4
Night-time Sensitivity	0 lux with infrared (B/W)	N/A
S/N Ratio	Greater than 48dB (AGC off)	Greater than 48dB
Output Signal	1Vp-p, 75 Ohm	
Gamma	0.45	
Gain Control	AGC (with on/off switch)	
Electronics Iris	1/60 to 1/100000 (NTSC) / 1/50 to 1/100000 (PAL)	
Gimbal	Pan-Tilt-Twist for easy installation	
Voltage Supply	12-24 VAC (50/60 Hz) 12-24 VDC	
Power Draw	5 W max.	
Construction	Polycarbonate dome, semi-spherical, 3mm thick	
Base Construction	CNC Anodized Aluminum	
Weight	610 g (1.3 lbs)	
Operational Range	-40°C to +60°C (-40°F to 140°F)	
Humidity Range	Up to 85% relative humidity	
Overall Dimension	118 mm (4.6 in) Diameter / 100 mm(3.92 in) H	

Ordering Information

EX40C7V0310BH-P Ultra Vandal-Proof Dome Extreme dome, 1/3-inch hi-res color, 500 TVL, 2.8-10 mm lens, tint dome, black base, PAL	EX40C7V0310BH-P
EX40C7V0310BH-N Ultra Vandal-Proof Dome Extreme dome, 1/3-inch hi-res color, 500 TVL, 2.8-10 mm lens, tint dome, black base, NTSC	EX40C7V0310BH-N
EX40C7V0310BC-P Ultra Vandal-Proof Dome Extreme dome, 1/3-inch hi-res color, 500 TVL, 2.8-10 mm lens, clear dome, black base, PAL	EX40C7V0310BC-P
EX40C7V0310BC-N Ultra Vandal-Proof Dome Extreme dome, 1/3-inch hi-res color, 500 TVL, 2.8-10 mm lens, clear dome, black base, NTSC	EX40C7V0310BC-N
EX40MX4V0310BH-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, tint dome, black base, PAL	EX40MX4V0310BH-P
EX40MX4V0310BH-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, tint dome, black base, NTSC	EX40MX4V0310BH-N
EX40MX4V0310BC-P Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, clear dome, black base, PAL	EX40MX4V0310BC-P
EX40MX4V0310BC-N Ultra Vandal-Proof Dome Extreme dome, extended day/night, 540 TVL, 2.8-10 mm lens, tint dome, black base, PAL	EX40MX4V0310BC-N
Accessories	
EXMB.045B Dome Pendant Bracket Dome Pendant Bracket for EX40(N) and EX46LED, black	EXMB.045B
EX-VPC Video Patch Connector Video patch connector for EX40 and EX49	EX-VPC
EX-Dome-C Clear replacement dome for EX40/49	EX-Dome-C
EX-Dome-H Half-tint replacement dome for EX40/49	EX-Dome-H
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50

WZ45N Integrated Day/ Night IR Dome



Features

- ▶ **Robust vandal-resistant construction**
- ▶ **User-friendly design and OSD for easily-adjustable camera settings**
- ▶ **520 TVL 1/3 in CCD with Mechanical Filter Technology**
- ▶ **18 m (60 ft) of exceptional night vision performance**
- ▶ **All-environment IP66 housing, conduit compatible**

The WZ45N Integrated Day/Night Dome camera is a vandal-resistant, user-friendly surface mount camera designed for effective 24/7 surveillance. Equipped with a 520 TVL mechanical filter CCD and 18 high-efficiency LEDs, the WZ45N delivers vivid daytime color and 18 m (60 ft) of active-infrared night vision.

All-weather ready and rich with practical enhancements, the WZ45N is ideal for a wide variety of security applications including schools, commercial property and correctional facilities.

Functions

Evenly-distributed night vision

- 18 m (60 ft) exceptional night vision
- 30 m (100 ft) infrared range
- Even distribution IR for optimal image capture

Mechanical Filter for outstanding 24/7 performance

- Enables exceptional image capture in day and night conditions
- Sensitive to visible light in day conditions, producing vivid daytime color
- Switches to infrared in night time conditions for irrefutable image capture

- Photocell controlled for maximum energy efficiency

User-friendly design

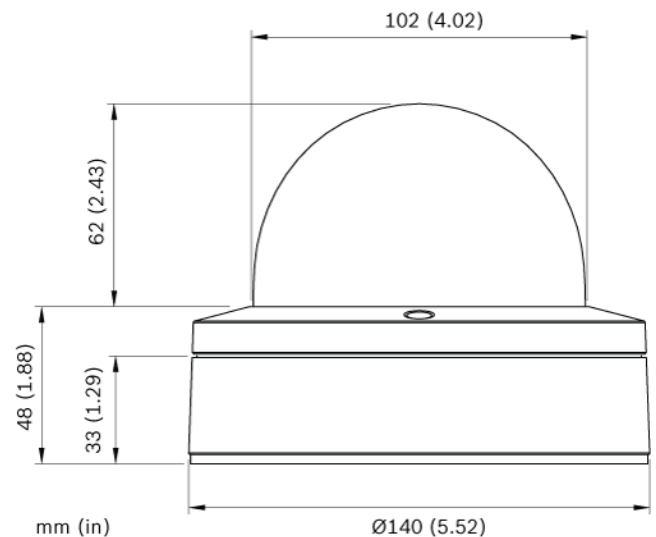
- Extended thumb screws for easy focus and zoom adjustment
- Easily accessible joystick for convenient control of OSD menu system and features
- Video patch lead enables local image verification on a portable monitor
- Pan-Tilt-Twist (3-axis) gimbal enables installers to correct off-center images for properly centered images even along walls
- Conduit compatible for easy installations

Robust aluminum construction

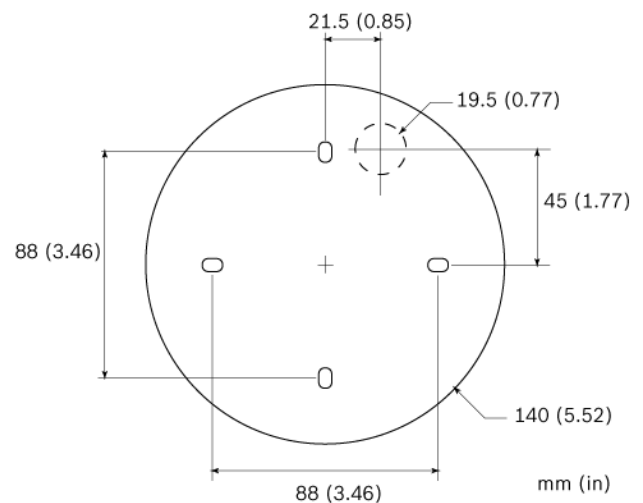
- Vandal-resistant performance
- Withstands even the most brutal attacks
- IP66-certified for resistance to harsh outdoor elements

Installation/Configuration Notes

Dimensions



Mounting template



Technical Specifications

Video

CCD Camera	1/3 in CCD with Mechanical Filter Technology
Filtering	Mechanical Filter Technology
Resolution	High resolution 520 TVL
Night Time Sensitivity	0 lux (infrared on)
Day/Night Switching	Photocell-controlled, automatic
Electronics Iris	1/50 to 1/100,000 s (PAL), 1/60 to 1/100,000 s (NTSC)
Output Signal	1 VPP composite video, 75 ohm
Output connection	BNC connector
S/N Ratio	Greater than 48 dB
Gamma	0.45
Lens	3 to 12 mm varifocal auto-iris
LEDs	High efficiency 18-LED infrared array
Wavelength	850 nm

Mechanical

Housing	Surface mount dome, vandal resistant
Gimbals	3D gimbal for easy installation
Construction	Robust aluminum
Finish	Powder coat silver
Conduit Compatible	1/2-inch NPT

Electrical

Power Consumption	4.5 W max
Voltage	12 VDC or 24 VAC/DC
Power Supply	Not included

Environmental

Operational Temp.	-30 °C to +55 °C (-22 °F to 131 °F)
Environment	IP66 certified

Ordering Information

Accessories

EXMB.045WZ Dome Pendant Bracket Dome Pendant Bracket for WZ45, silver	EXMB.045WZ
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Ordering Information

WZ45NV312-0-N Integrated Day/ Night IR Dome Camera

WZ45NV312-0-N

520 TVL Integrated Day/Night IR Dome, Varifocal Auto-Iris 3 to 12 mm, 12/24 VAC/DC, NTSC

WZ45NV312-0-P Integrated Day/ Night IR Dome Camera

WZ45NV312-0-P

520 TVL Integrated Day/Night IR Dome, Varifocal Auto-Iris 3 to 12 mm, 12/24 VAC/DC, PAL

WZ45NV312-0-NU Integrated Day/ Night IR Dome Camera

WZ45NV312-0-NU

520 TVL Integrated Day/Night IR Dome, Varifocal Auto-Iris 3 to 12 mm, 12/24 VAC/DC, NTSC, UTP video output

WZ45NV312-0-PU Integrated Day/Night Dome Camera

WZ45NV312-0-PU

520 TVL Integrated Day/Night IR Dome, Varifocal Auto-Iris 3 to 12 mm, 12/24 VAC/DC, PAL, UTP video output

WZ14 Integrated Day/ Night Bullet Camera



Features

- ▶ **SuperHAD 1/3 in CCD, 380 TVL**
- ▶ **8 m (26 ft) of infrared illumination**
- ▶ **3.7 mm fixed lens**
- ▶ **Compact, water-resistant housing**
- ▶ **Bracket and sunshield included as standard**

The WZ14 provides reliable day and night surveillance in a compact, water resistant design that integrates 12 infrared LEDs for 8m (26 ft) of night vision.

Incorporating a SuperHAD 1/3 in CCD, the WZ14 delivers 380 TVL of color imaging during day and active-infrared monochrome at night.

The WZ14 uses 12 photocell-controlled infrared LEDs to deliver up to 8 m (26 ft) of night vision for effective 24/7 performance. Photocell-controlled LEDs ensure accurate on/off switching and help increase energy efficiency.

The WZ14 includes a versatile mounting bracket suitable for walls, surfaces and ceilings, as well as a sunhood. Constructed of extruded aluminum, the WZ14 is compact and discreet, featuring an anodized silver finish.

For indoor environments, the WZ14 is a quick and easy Plug-and-Play solution for 24/7 day and night surveillance.

Functions

Applications

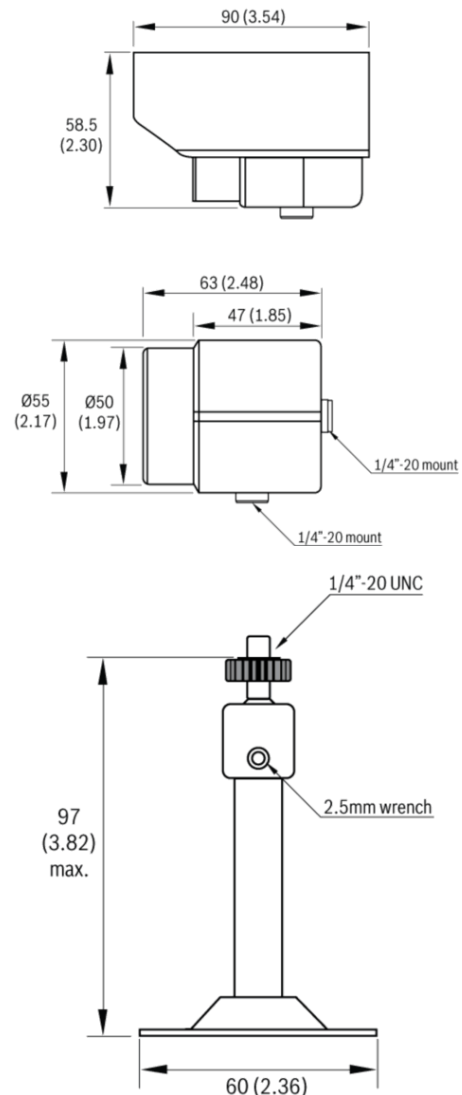
- Commercial
- Warehouses
- Offices
- Retail
- Schools
- Residential

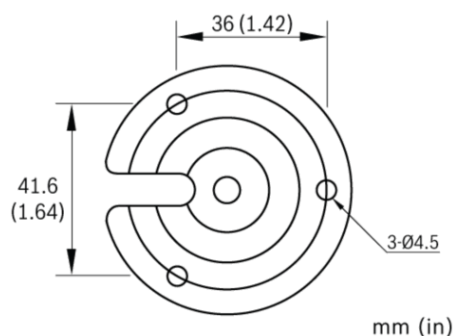
- Casinos
- Restaurants
- Hotels and nightclubs
- Convenience stores
- Banks

Certifications and Approvals

Region	Certification
Europe	CE

Installation/Configuration Notes





Ordering Information

WZ14N4-0 IDN Bullet Camera

WZ14N4-0

IDN bullet cam, 380TVL, color switching to bw, 12LEDs, silver, NTSC, 3.7 mm lens, PSU separate

WZ14P4-0 IDN Bullet Camera

WZ14P4-0

IDN bullet cam, 380TVL, color switching to bw, 12LEDs, silver, PAL, 3.7 mm lens, PSU separate

Technical Specifications

Video

CCD Image Sensor	1/3 in SuperHAD CCD
Type	Color / monochrome, video level switching
Resolution	380 TVL
Effective Pixels (H x V)	PAL: 500 x 582, NTSC: 510 x 492
Night-Time Sensitivity	0 lux (infrared on)
Electronics Iris	1/50 to 1/100,000 s (PAL), 1/60 to 1/100,000 s (NTSC)
Output Signal	1 Vpp composite video, 75 ohm
S/N Ratio	Greater than 48 dB
Gamma	0.45
Lens	Fixed 3.7 mm lens
LEDs	Infrared array, photocell-controlled
Wavelength	850 nm
Number of LEDs	12

Electrical

Voltage	12 VDC
Power Draw	3 W Max.
Power Supply	Not included

Mechanical

Construction	Aluminum extrusion
Finish	Anodized silver
Sunshield	Included as standard
Bracket	Pan-tilt bracket included as standard
Weight	0.39 kg (0.86 lb)
Dimensions	Ø 58.5 x 90 (L) mm (Ø 2.3 x 3.5 (L) in)

Environmental

Operation Temperature Range	-30 °C to +55 °C (-22 °F to +131 °F)
Environment	IP67 compliant

WZ16 Integrated Day/ Night High-res Bullet Camera



Features

- ▶ SuperHAD 1/3 in CCD, 520 TVL
- ▶ 18 m (59 ft) night vision in zero lux
- ▶ Mechanical lens filter for 24/7 performance
- ▶ 3.8 to 9.5 mm varifocal lens
- ▶ Compact, all-weather housing

The WZ16 provides reliable day and night surveillance in a compact, water resistant design that integrates 18 infrared LEDs for 18 m (59 ft) of IR-cut filtered night vision.

Incorporating a SuperHAD 1/3 in CCD, the WZ16 delivers 520 TVL color imaging during day and 18 m (59 ft) of active-infrared night vision under zero lux.

The WZ16 also features a mechanical IR-cut lens filter for accurate daytime color and exceptional performance under infrared. Mechanical filter technology minimizes IR bleed and prevents focus shift from daytime to night-time modes.

The WZ16 uses 18 photocell-controlled infrared LEDs to deliver up to 18 m (59 ft) of night vision for effective 24/7 performance. Photocell-controlled LEDs ensure accurate on/off switching and help increase energy efficiency.

The WZ16 includes a versatile mounting bracket suitable for walls, surfaces and ceilings, as well as a sun hood. Constructed of extruded aluminum, the WZ16 is compact and discreet, featuring an anodized silver finish.

The WZ16 is a quick and easy Plug-and-Play solution for 24/7 day and night surveillance.

Functions

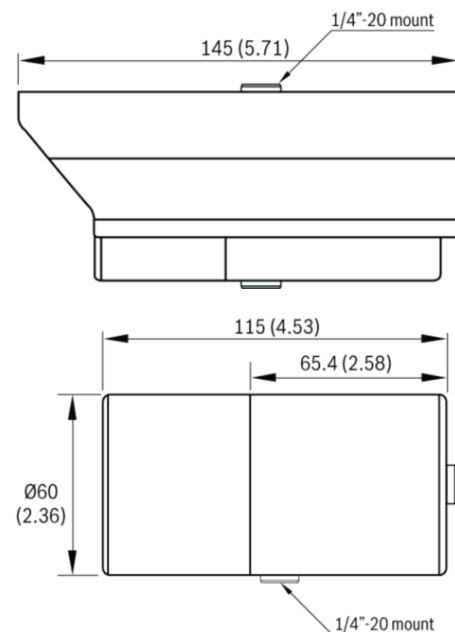
Applications

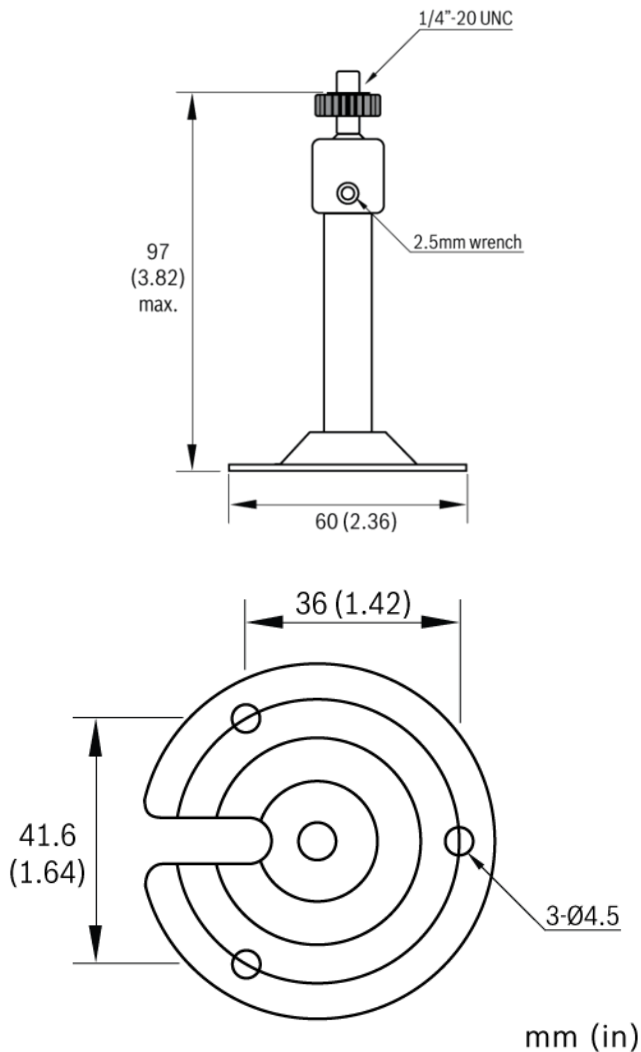
- Industrial sites
- Casinos
- Warehouses
- Service stations
- Commercial
- Parking lots
- Retail
- Perimeters
- Transportation hubs
- Ports
- Residential
- Hotels and nightclubs
- Schools and colleges

Certifications and Approvals

Region	Certification
Europe	CE

Installation/Configuration Notes



**Electrical**

Voltage	12 to 24 VDC or VAC
Power Draw	6 W Max.
Power Supply	Not included

Mechanical

Construction	Robust aluminum extrusion
Finish	Anodized silver
Sunshield	Included as standard
Bracket	Pan-tilt bracket included as standard
Weight	0.56 kg (1.2 lb)
Dimensions	Ø 60 x 145 (L) mm (2.4 x 5.7 in)

Environmental

Operation Temperature Range	-30 °C to +55 °C (-22 °F to +131 °F)
Environment	IP67 compliant

Ordering Information**WZ16NV408-0 IDN High-res Bullet Camera**

IDN bullet cam, 520TVL, SuperHAD, color switching to bw, lens filter, 18LEDs, silver, NTSC, 3.8 to 9.5 mm lens, PSU separate

WZ16NV408-0**WZ16PV408-0 IDN High-res Bullet Camera**

IDN bullet cam, 520TVL, SuperHAD, color switching to bw, lens filter, 18LEDs, silver, PAL, 3.8 to 9.5 mm lens, PSU separate

WZ16PV408-0**Technical Specifications****Video**

Signal Processing	Digital signal processing (DSP)
CCD Camera	1/3 in SuperHAD CCD
Filter	IR-Cut, lens mounted
Resolution	High resolution 520 TVL
Effective Pixels (H x V)	PAL: 752 x 582, NTSC: 768 x 494
Night-Time Sensitivity	0 lux (infrared on)
Electronics Iris	1/50 to 1/100,000 s (PAL), 1/60 to 1/100,000 s (NTSC)
Output Signal	1 VPP composite video, 75 ohm
S/N Ratio	Greater than 48 dB
Gamma	0.45
Lens	Varifocal 3.8 to 9.5 mm, DC auto-iris
LEDs	Infrared array, photocell-controlled
Wavelength	850 nm
Number of LEDs	18

WZ18 Integrated Day/ Night High-res Bullet Camera



Features

- ▶ 550 TVL high resolution 1/3 in SuperHAD CCD
- ▶ Mechanical filter for vivid daytime color
- ▶ 20 m (66 ft) of high performance night vision
- ▶ 3 to 12 mm varifocal auto-iris lens
- ▶ IP66 with external zoom and focus adjustments

The WZ18 brings together 550 TVL high resolution imaging, mechanical filter CCD technology and ruthlessly efficient dealer-friendly design. The camera delivers 20 m (66 ft) of high performance night vision.

The WZ18 incorporates 18 LEDs which are powerful enough to drive infrared to a maximum range of 30 m (100 ft). For the purposes of CCTV surveillance imaging, the resulting infrared illumination delivers high performance night vision images up to a distance of 20 m (65 ft).

The WZ18 uses a 1/3 in CCD image sensor, delivering 550 TVL images. Using a dual window IR-Cut and IR-Pass filter, the WZ18 delivers vivid color during day and exceptional performance to infrared at night. The mechanical filter technology helps eliminate focus shift and infrared bleed for effective 24/7 performance.

The WZ18 incorporates a 3 to 12 mm varifocal, auto-iris lens for versatile optical function. Focus and zoom are controlled externally by hand, requiring no tools for adjustments and making WZ18 a true Plug-and-Play camera.

Designed to IP66 environmental standards, WZ18 operates on either 12 VDC or 24 VAC. Photocell-controlled operation increases energy efficiency and ensures accurate day-night switching for outstanding 24/7 performance. A 360° pan / 90° tilt bracket and sunshield are both included as standard.

Functions

Applications

- Commercial
- Schools and colleges
- Industrial sites
- Residential
- Warehouses
- Parking lots
- Retail
- Hotels and nightclubs
- Transportation hubs

Certifications and Approvals

Region	Certification
Europe	CE

Technical Specifications

Video

Signal Processing	Digital signal processing (DSP)
CCD Camera	1/3 in SuperHAD CCD with Mechanical Filter technology
Filter	Dual-window mechanical type, IR Pass, IR-Cut
Resolution	High resolution 550 TVL
Effective Pixels (H x V)	PAL: 795 x 596, NTSC: 811 x 508
Night-Time Sensitivity	0 lux (infrared on)
Day-Night Switching	Photocell-controlled, automatic
Electronics Iris	1/50 to 1/100,000 s (PAL), 1/60 to 1/100,000 s (NTSC)
Output Signal	1Vpp composite video, 75 ohm
S/N Ratio	Greater than 48 dB
Gamma	0.45
Lens	Varifocal 3.3 to 12mm, DC auto-iris
Lens Control	Externally adjustable zoom, focus and auto-iris
LEDs	Even-distribution infrared array, photocell-controlled
Wavelength	850 nm
Number of LEDs	18

Electrical

Voltage	12 to 24 VDC or VAC
Power Draw	4.8 W max (IR lamp on)
Power Supply	Not included

Mechanical

Construction	Robust aluminum extrusion
Finish	Anodized silver
Sunshield	Included as standard
Bracket	360° pan / 90° tilt bracket included as standard
Weight	0.85 kg (1.9 lb)
Dimensions	Ø 76 x 210 (L) mm, (3.0 x 8.3 in)

Environmental

Operational Temperature	-30 °C to +55 °C, (-22 °F to +131 °F)
Environmental	Designed to IP66

Ordering Information

WZ18NV312-0 IDN High-res Bullet Camera IDN bullet cam, 550TVL, SuperHAD, color switching to bw, mech filter, 18LEDs, silver, NTSC, 3 to 12 mm lens, PSU separate	WZ18NV312-0
WZ18PV312-0 IDN High-res Bullet Camera IDN bullet cam, 550TVL, SuperHAD, color switching to bw, mech filter, 18LEDs, silver, PAL, 3 to 12 mm lens, PSU separate	WZ18PV312-0

Accessories

WZMB.001 Gang Box Adapter Plate Gang box adapter plate for WZ18 and WZ20	WZMB.001
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WZ20 Integrated Day/ Night High-res Bullet Camera



Features

- ▶ 550 TVL high resolution 1/3 in LXR CCD
- ▶ Mechanical filter for vivid daytime color
- ▶ 46 m (150 ft) of high performance night vision
- ▶ 5 to 50 mm varifocal auto-iris IR-corrected lens
- ▶ IP66 with external zoom and focus adjustments

The WZ20 brings together high resolution LXR imaging, the latest advances in mechanical filter lensing technology and ruthlessly efficient dealer-friendly design. The camera delivers 45 m (150 ft) of high performance night vision.

The WZ20 incorporates 30 LEDs which are powerful enough to drive infrared to a maximum range of 91 m (300 ft). For the purposes of CCTV surveillance imaging, the resulting infrared illumination delivers high performance night vision imaging up to a distance of 45 m (150 ft).

The WZ20 uses proprietary LXR 1/3 in CCD technology, delivering 550 TVL images. LXR technology is field-proven for outstanding IR spectral response, as well as video images characterized by low-smear, low-streak and excellent anti-blooming characteristics.

Using a dual window IR-Cut and IR-Pass filter, the WZ20 delivers vivid color during day and outstanding sensitivity to infrared at night. Photocell-control increases energy efficiency and ensures accurate day-night switching for outstanding 24/7 performance.

The WZ20 also features a versatile 5 to 50 mm IR-corrected lens for outstanding performance under both visible light and infrared illumination. Combined with the mechanical filter technology, the WZ20 optical core virtually eliminates focus shift between color and infrared modes, allowing sharp focus during day or at night.

Focus and zoom are controlled externally by hand, requiring no tools and making the 5 to 50 mm IR-corrected lens effortless to adjust. A 90° pan / 360° tilt bracket and sunshield are both included as standard.

Functions

Applications

- Commercial
- Schools and colleges
- Industrial sites
- Residential
- Warehouses
- Parking lots
- Retail
- Hotels and nightclubs
- Transportation hubs
- Perimeters

Certifications and Approvals

Region	Certification
Europe	CE

Technical Specifications

Video

Signal Processing	Digital signal processing (DSP)
CCD Camera	1/3 in LXR CCD with Mechanical Filter technology
Filter	Dual-window mechanical type, IR Pass, IR-Cut
Resolution	High resolution 550 TVL
Effective Pixels (H x V)	PAL: 795 x 596, NTSC: 811 x 508
Night-Time Sensitivity	0 lux (infrared on)
Day-Night Switching	Photocell-controlled, automatic
Electronics Iris	1/50 to 1/100,000 s (PAL), 1/60 to 1/100,000 s (NTSC)
Output Signal	1 Vpp composite video, 75 ohm
S/N Ratio	Greater than 48 dB
Gamma	0.45
Lens	IR-corrected, varifocal 5 to 50 mm, DC auto-iris
Lens Control	Externally adjustable zoom, focus and auto-iris
LEDs	Even-distribution infrared array, photocell-controlled

Wavelength	850 nm
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Number of LEDs	30
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Electrical

Voltage	12 to 24 VAC or VDC
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Power Draw	8 W max (infrared on)
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Power Supply	Not included
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Mechanical

Construction	Robust aluminum extrusion
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Finish	Anodized silver
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Sunshield	Included as standard
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Bracket	360° pan / 90° tilt bracket included as standard
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Weight	1.7 kg (3.8 lb)
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Dimensions	Ø 98 x 292 (L) mm, (3.0 x 11.5 in)
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Environmental

Operation Temperature Range	-30 °C to +55 °C, (-22 °F to +131 °F)
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Environment	Designed to IP66
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Ordering Information

WZ20NXV550-0 IDN High-res Bullet Camera	WZ20NXV550-0
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IDN bullet cam, 550TVL, ExView, color switching to bw, mech filter, 30LEDs, silver, NTSC, 5-50 mm lens, PSU separate	
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WZ20PXV550-0 IDN High-res Bullet Camera	WZ20PXV550-0
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IDN bullet cam, 550TVL, ExView, color switching to bw, mech filter, 30LEDs, silver, PAL, 5-50 mm lens, PSU separate	
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Accessories

WZMB.001 Gang Box Adapter Plate	WZMB.001
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Gang box adapter plate for WZ18 and WZ20	
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REG Sentry Access Control



Features

- ▶ **Complete ANPR access control system – can replace or work with keypads, code readers or guards**
- ▶ **Stand-alone, easy installation and system set-up software**
- ▶ **24/7 capture using REG license plate capture cameras**
- ▶ **Range of capture distances – 6.6 m / 15 m / 18 m**
- ▶ **Selectable security levels offers maximum installation flexibility**
- ▶ **Generic European license plate recognition library supplied as standard**
- ▶ **Support for 10000 entries on the white / black list**

The REG Sentry is the first automated vehicle access control system. It consists of a control box with embedded processing engine, a choice of license plate capture cameras to accommodate a range of capture distances and easy-to-use Sentry Viewer software. The system delivers a flexible, user-friendly ANPR solution for a wide range of access control applications.

The REG Sentry system is designed to operate as either a stand-alone solution or to be integrated with existing access control equipment. The user can configure the system to permit entry or bar entry to any vehicle attempting to enter a secure site using a user-defined number plate list.

Users upload number plate data using the PC-based Sentry Viewer software to create a customized list. The REG camera captures the number plate of any vehicle approaching an access control point and sends that data to the control box which processes the information, compares it to the list and sends a signal to the access barrier to open or remain closed.

The REG Sentry system can be used in a wide range of access control applications including car parking, gated communities, factories, warehouses, offices, schools and colleges.

System Overview

Control box

The REG Sentry control box combines dedicated electronics, frame grabber, an embedded processing engine and license plate libraries into one compact, discreet unit. The control box can be fitted at any access control point to provide ANPR-based access control.

Features include:

- Embedded ANPR processing engine
- Analog camera input
- Relay controlled output
- LAN communications
- Black / White list memory
- Generic European license plate recognition library
- Self-diagnostic watchdog

Software

The Sentry Viewer software is supplied as standard and offers the user a simple PC-based interface for the configuration of date, time and choice of three levels of security (high, medium or low). The software features a live stream view and allows users to import number plate data from a text file and upload it to the control box.

Features include:

- Device name definition
- Live stream viewing
- Easy addition / removal of number plates
- Display of up to 500 transactions
- Date and time configuration
- Security level selection
- Relay close time
- 10000 entry, black / white list function selection
- Password setting

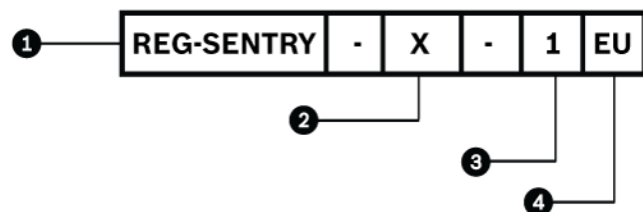
Camera

Users can choose from a range of field-proven REG number plate capture cameras, offering a range of capture distances to ensure a best fit solution. REG cameras have proven to be the most successful in overcoming the many challenges that effective number plate capture entails.

Features include:

- Consistent plate capture, 24/7 reliability
- Capture in day and dark conditions
- Effective at different approach angles
- Not affected by ambient lighting or weather conditions
- Range of capture distances: 7.5 m (REG-X), 15 m (REG-LX), 18 m (REG-L1)

Installation/Configuration Notes



1	Model		REG Sentry
2	Camera Type	X	REG-X (6.6 m)
		LX	REG-LX (15 m)
		L1	REG-L1 (18 m)
		00	No Camera
3	Region	1	Europe, Middle East and Africa
4	Number plate library	EU	Europe

Technical Specifications

PC System Requirements

CPU	Intel Pentium 4 or compatible, minimum 2.4 GHz
RAM	Minimum 2 GB
Network	Ethernet (100 Mb recommended)
Graphics Card	AGP or PCI-Express, minimum 1024 x 768 (1280 x 1024 recommended), 32-bit colors
OS	Windows XP professional, Windows Server 2003 or Windows Vista Business (32-bit and 64-bit*), Vista Enterprise (32-bit and 64-bit*), Vista Ultimate (32-bit and 64-bit*)

**Running as a 32-bit application.*

Environmental

Operational Temp.	-50 °C to +50 °C (-58 °F to 122 °F)
Environmental Rating	IP66

Ordering Information

REG-SENTRY-00-1EU REG Sentry Access Control	REG-SENTRY-00-1EU
Access Control REG Sentry-00, No Camera	
REG-SENTRY-X-1EU REG Sentry Access Control	REG-SENTRY-X-1EU
Access Control REG Sentry-X, 16 mm PAL	

REG-X Close-range Plate Camera



Features

- ▶ **Ambient Rejection Technology** captures plates 24/7 in day or dark conditions up to 80 km/h (50 mph)
- ▶ **Capture range 4.5 to 7.6 m (15 to 25 ft)**
- ▶ **400 TVL LXR B/W CCD** for high contrast plate capture
- ▶ **Reliable performance under any ambient lighting conditions**
- ▶ **Cable-managed bracket, conduit compatible**
- ▶ **IP66 compliant** for extreme weather performance
- ▶ **Discreet, compact and easy to install**
- ▶ **Connects directly to industry standard DVRs**
- ▶ **Installer-friendly design**

Based on award-winning technology, the REG-X delivers absolute performance in close-range number plate capture applications.

Precision engineered to deliver irrefutable plate images both day and night, REG-X features Ambient Rejection Technology to ensure consistent, reliable plate capture from close range.

A powerful 850 nm infrared array ensures that REG-X works under all ambient lighting conditions, including complete darkness and headlight glare. The 16 mm fixed lens provides effective 400 TVL capture from a range of 4.5 to 7.6 m (15 to 25 ft.)

REG-X integrates seamlessly with industry standard DVRs and is IP66 compliant for harsh outdoor environments. Discreet, compact and installer-friendly, REG-X is suitable in both 12 V and 24 V environments.

Technical Specifications

Operational Range	4.5 to 7.6 m (15 to 25 ft)
Image Sensor	1/3 in LXR, mono
Resolution	400 TVL
Mono Camera CCD Effective Pixels	CCIR: 795 x 596 (H x V), EIA: 811 x 508 (H x V)
Minimum Illumination	0 lx - camera operates in complete darkness
IR Wavelength	850 nm
Lens	16 mm
Video Signal Output	1 Vpp, 75 ohm
S/N Ratio	> 48 dB
Environmental	IP66
Operating temperature range	-30 °C to +55 °C (-22 °F to +131 °F)
Dimensions	96 x 219 mm (3.8 x 8.6 in) (Ø x L)
Weight	1.2 kg (2.7 lb)
Construction	Aluminum
Finish	Anodized black
Input voltage range	12 to 24 VDC or 24 VAC
Power consumption	6.5 W

Ordering Information

REG-X-816-XE Close-range Plate Camera REG X close-range LPR, 400 TVL, 1/3 in LXR, 15 to 25 ft, 16 mm lens, EIA, psu sold separately.	REG-X-816-XE
REG-X-816-XC Close-range Plate Camera REG X close-range LPR, 400 TVL, 1/3 in LXR, 4.5 to 7.6 m (15 to 25 ft), 16 mm lens, CCIR, psu sold separately.	REG-X-816-XC

REG-L1 License Plate Cameras



Features

- ▶ High speed capture to 160 km/h (100 mph)
- ▶ 24/7 Capture in day and dark conditions
- ▶ Advanced Ambient Rejection Technology
- ▶ Energy efficient operation at 12 to 24 VAC/VDC
- ▶ Compact housing, installer friendly design

REG-L1 integrates advances in optics, electronics, IR illumination and Ambient Rejection Technology to deliver consistent, reliable number plate capture in the most challenging of conditions

With an operational range of up to 30 m (100 ft) or 25 m (80 ft) depending on number plate size, REG-L1 delivers high contrast number plate images across the complete spectrum of ambient lighting conditions, from total darkness to direct glare from sunlight and vehicle headlights. The camera can capture clear plate images from vehicles moving at speeds of up to 160 km/h (100 mph) enabling effective capture on motorways, highways and in other high speed applications.

The unit housing is weather-sealed and field proven for successful application in extreme environments. REG-L1's LED array eliminates the need for routine bulb changes. An improved electronic design allows for energy efficient operation at 12 to 24 VAC/VDC

REG-L1 is designed to work with NVRs or with DVRs. It is specifically designed to work with third party ANPR software.

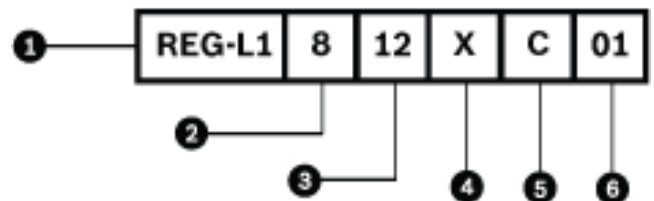
Functions

Applications

- ANPR
- Traffic monitoring
- Border control
- Access control
- Car parking
- Policing
- Post event investigation
- 12 V to 24 VAC/VDC operation

Installation/Configuration Notes

Ordering chart



1. Model	REG-L1	
2. Wavelength	8	850 nm
3. Lens	12	12 mm
	16	16 mm
	25	25 mm
	35	35 mm
	75	75 mm
4. Camera Type	X	Standard
5. Region	C	CCIR
	E	EIA
6. Color	01	Black

Technical Specifications

Operational Range	Up to 30 m (100 ft) or 25 m (80 ft) depending on number plate size
Camera Sensors	1/2 in LXR CCD sensor
Resolution	High resolution 600 TVL
IR Illumination	LED array, 850 nm
Life	Greater than 5 years
Input	12 to 24 VAC/VDC
Consumption	30 W
Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F)
Construction	Robust, weather sealed aluminum casting and extrusion
Environmental	Sunshield
Dimensions	250 x 154 x 165 mm (9.8 x 6.1 x 6.5 in)
Weight	2.8 kg (6.2 lb)
Color	Supplied in black(RAL B401)

Camera Selection Tables

Range for 12 x 6 in (305 x 152 mm) number plates
(common in North America)

Model	Range	Optimal Distance
REG-L1-816	4 to 7 m (12 to 22 ft)	5 m (16 ft)
REG-L1-825	6 to 10 m (20 to 34 ft)	8 m (25 ft)
REG-L1-835	8 to 15 m (27 to 48 ft)	11 m (35 ft)
REG-L1-850	12 to 21 m (40 to 68 ft)	15 m (50 ft)
REG-L1-875	17 to 24 m (55 to 80 ft)	23 m (75 ft)

Range for 520 x 111 mm (20.5 x 4.4 in) number plates
(common in Europe)

Model	Range	Optimal Distance
REG-L1-812	3 to 6 m (10 to 20 ft)	5 m (16 ft)
REG-L1-816	5 to 8 m (16 to 26 ft)	7 m (23 ft)
REG-L1-825	7 to 12 m (23 to 40 ft)	10 m (33 ft)
REG-L1-835	11 to 18 m (34 to 60 ft)	15 m (50 ft)
REG-L1-850	17 to 25 m (56 to 82 ft)	22 m (72 ft)
REG-L1-875	22 to 30 m (72 to 100 ft)	28 m (92 ft)

Ordering Information

REG-L1-812XE-01 License Plate Camera **REG-L1-812XE-01**
License Plate Reader with LED, 12 mm lens,
SX8 camera, EIA, 7 to 14 ft, psu separate

Accessories

EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B

REG-D1 License Plate Cameras



Features

- ▶ **License plate capture with color overview camera for surrounding area surveillance**
- ▶ **High-speed capture to 160 km/h (100 mph)**
- ▶ **Integrated LED illumination for night-time image capture**
- ▶ **Ambient rejection technology eliminates problems caused by headlight glare**
- ▶ **Low voltage, energy efficient operation**
- ▶ **Compact and installation friendly design**

The REG-D1 series delivers advanced license plate capture performance and features a high resolution day/night overview camera for surrounding area surveillance to identify vehicle model and color.

REG-D1 integrates advances in optics, electronics, infrared illumination and ambient rejection technology to overcome all the challenges typically associated with license plate capture to deliver consistent, reliable images in the most challenging of conditions

With an operational range of up to 30 m (100 ft) or 25 m (80 ft) depending on number plate size, the REG-D1 delivers high contrast license plate images across the complete spectrum of ambient lighting from total darkness to direct glare from sunlight or vehicle headlights regardless of the prevailing lighting conditions. The camera can capture clear plate images from vehicles traveling at speeds of up to 160 km/h (100 mph), making REG-D1 suitable for motorways and highways applications.

The camera housing is weather sealed and IP66 / NEMA 4 rated for field-proven performance in the most extreme surveillance conditions. LED infrared illumination ensures consistent, reliable capture day and night.

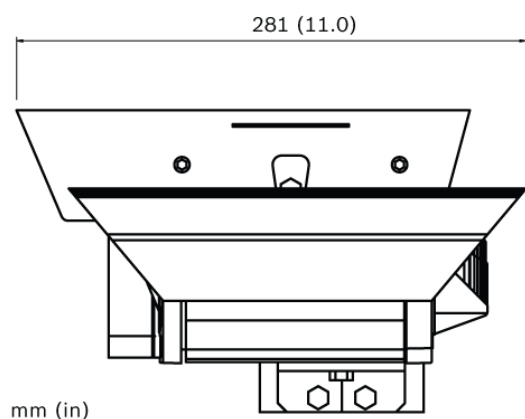
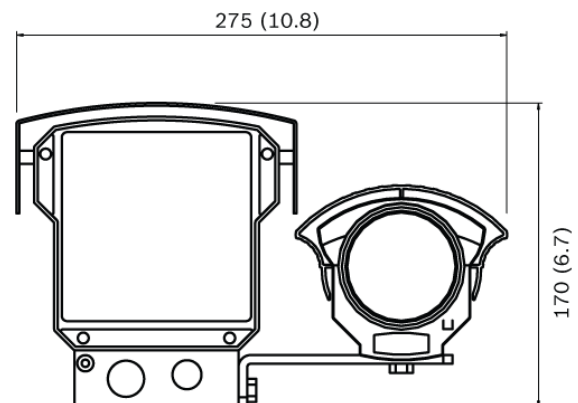
REG-D1 is designed to work with NVRs and DVRs, and is specifically engineered for easy integration with third party ANPR software.

Applications

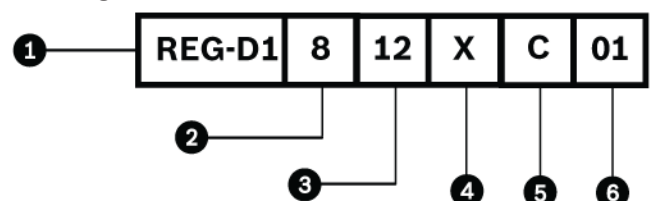
- ANPR
- Traffic Monitoring
- Border Control
- Parking
- Security and Access Control
- Post event investigation
- Police

Installation/Configuration Notes

Dimensions



Ordering chart



1 Model	REG-D1	
2 Wavelength	8	850 nm
3 Lens	012	12 mm
	016	16 mm
	025	25 mm
	035	35 mm
	050	50 mm
	075	75 mm
4 Camera Type	X	Standard
5 Region	C	CCIR
	E	EIA
6 Color	01	Black

Technical Specifications

Operational Range	Up to 30 m (100 ft) or 25 m (80 ft) depending on number plate size
Camera Sensors	License plate capture and color overview camera: LXR CCD sensors
Camera Resolution	License plate capture camera: 520 TVL Color overview camera: 520 TVL color / 540 TVL monochrome
IR Illumination	850 nm LED infrared array
Typical Operational Life	> 5 years
Power Input	12 – 24 VAC or VDC
Power Consumption	30 W max.
Operational Temp. Range	-50°C to +50°C (-58°F to +122°F)
Construction	Robust, weather sealed aluminum casting and extrusion
Environmental	IP66 / NEMA 4
Dimensions	281 x 275 x 170 mm (11.0 x 10.8 x 6.6 in)
Weight	5.8 kg (12.7 lb)
Color	Black as standard (RAL B401)
Bracket	Order bracket separately

Camera Selection Tables

Range for 12 x 6 in (305 x 152 mm) number plates (common in North America)

Model	Range	Optimal Distance
REG-D1-816	4 to 7 m (12 to 22 ft)	5 m (16 ft)
REG-D1-825	6 to 10 m (20 to 34 ft)	8 m (25 ft)
REG-D1-835	8 to 15 m (27 to 48 ft)	11 m (35 ft)
REG-D1-850	12 to 21 m (40 to 68 ft)	15 m (50 ft)
REG-D1-875	17 to 24 m (55 to 80 ft)	23 m (75 ft)

Range for 520 x 111 mm (20.5 x 4.4 in) number plates (common in Europe)

Model	Range	Optimal Distance
REG-D1-812	3 to 6 m (10 to 20 ft)	5 m (16 ft)
REG-D1-816	5 to 8 m (16 to 26 ft)	7 m (23 ft)
REG-D1-825	7 to 12 m (23 to 40 ft)	10 m (33 ft)

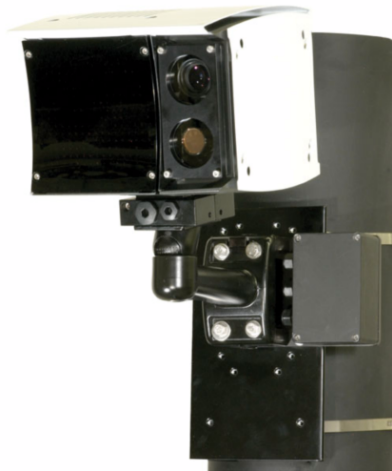
REG-D1-835	11 to 18 m (34 to 60 ft)	15 m (50 ft)
REG-D1-850	17 to 25 m (56 to 82 ft)	22 m (72 ft)
REG-D1-875	22 to 30 m (72 to 100 ft)	28 m (92 ft)

Ordering Information

Accessories

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061

REG-Z1 License Plate Cameras



Features

- ▶ **Consistent, reliable 24/7 capture regardless of weather or lighting conditions**
- ▶ **Integrated color overview camera for surrounding area surveillance**
- ▶ **Capture at up to 190 kph (120 mph) for highways, motorways and other high-speed applications**
- ▶ **Average LED operational life of more than 5 years**

The REG-Z1 series delivers advanced performance in vehicle license plate capture. Integrating advances in optics, infrared illumination and ambient rejection technology, the REG-Z1 delivers high contrast license plate images consistently and reliably.

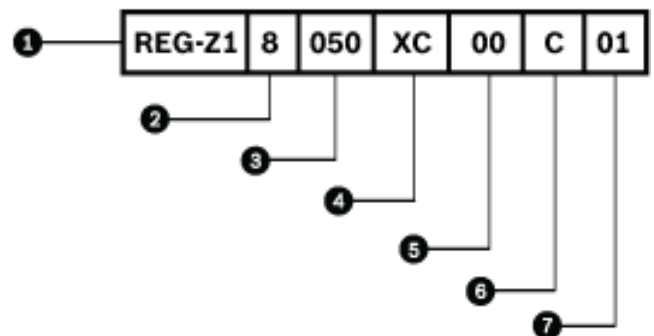
The REG-Z1 has an operational range of up to 50 m (164 ft) or 37 m (120 ft) depending on number plate size. Ambient rejection technology ensures that the REG-Z1 provides high contrast license plate images across the complete spectrum of ambient lighting conditions, from total darkness to direct glare from sunlight or vehicle headlights.

The REG-Z1 series offers a choice of single license plate capture camera or license plate capture with integrated 480 TVL color camera to provide overview images of the surrounding area including vehicle color, shape and model. A high-speed optical engine captures plates from vehicles traveling at speeds of up to 190 kph (120 mph), making REG-Z1 suitable for motorways, highways and other high speed applications.

IP66 / NEMA4 rated, the REG-Z1 is field proven for unrivalled performance in extreme environments. REG-Z1's LED array eliminates the need for routine bulb changes and delivers an average operational life of more than 5 years.

The REG-Z1 integrates easily with industry standard DVRs, NVRs, IP video servers and wireless broadband equipment. The REG-Z1's imaging technology delivers the high contrast images needed for Automatic License Plate Recognition (ALPR)

Installation/Configuration Notes



1 Model	REG-Z1	
2 Wavelength	8	850 nm
3 Lens/Range	050	50 mm
	075	75 mm
	100	100 mm
4 Camera Type	X0	Number Plate Capture Only
	XC	Number Plate Capture and Color Overview
5 Reserved		
6 Region	C	CCIR
	E	EIA
7 Color	01	Black

Technical Specifications

General Specification

CCDs	License Plate Capture CCD	Color Overview CCD
Sensor	1/2 -inch LXR CCD	1/3-inch LXR CCD
Resolution	600 TVL	480 TVL
Effective Pixels (H x V) Europe	CCIR: 795 x 596	PAL: 795 x 586
S/N Ratio	Greater than 48 dB	Greater than 48 dB
Video Output	High Contrast 1 Vpp at 75 ohm	1 Vpp at 75 ohm
Sensitivity	Zero lux (works in total darkness)	0.1 lux at F1.2
Lens	Choose from lens selector table below	Varifocal 5 to 50 mm with auto-iris
Infrared Illumination	850 nm	

General Specification

LEDs	IR LED array
Power Requirement	24 VAC or VDC
Power Consumption	30 W (1.3 A at 24 VAC)
Temperature	-50 °C to +50 °C (-58 °F to +122 °F)
Environmental	IP66
Construction	Robust, aluminum extrusion, polycarbonate, ABS alloy, borosilicate 2.5mm window
Weight	6.5 kg (14.2 lbs)
Dimensions	236 x 224 x 261 mm (9.3 x 8.8 x 10.3 in)
Color	Black with white sunshields

Camera Selection Tables

Range for 12 x 6 in (305 x 152 mm) number plates
(common in North America)

Model	Range	Optimal Distance
REG-Z1-8050	14 to 20 m (45 to 65 ft)	15 m (50 ft)
REG-Z1-8075	20 to 26 m (65 to 85 ft)	23 m (75 ft)
REG-Z1-8100	26 to 37 m (85 to 120 ft)	30 m (100 ft)

Range for 520 x 111 mm (20.5 x 4.4 in) number plates
(common in Europe)

Model	Range	Optimal Distance
REG-Z1-8050	15 to 25 m (49 to 82 ft)	22 m (72 ft)
REG-Z1-8075	20 to 35 m (66 to 115 ft)	28 m (92 ft)
REG-Z1-8100	30 to 50 m (100 to 164 ft)	42 m (138 ft)

Ordering Information**Accessories**

EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B
EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.061 Pole Top Bracket Stainless Pole Top Bracket	EXMB.061

NDC-455 FlexiDome IP Cameras



Features

- ▶ **1/3-inch color CCD with progressive scan**
- ▶ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**
- ▶ **Intelligence at the edge**
- ▶ **ONVIF conformant**
- ▶ **High-impact, vandal-resistant enclosure**

FlexiDome IP cameras are progressive scan CCD color cameras in a compact, high-impact rated, vandal-resistant housing.

They can tri-stream video simultaneously – on two H.264 streams and one M-JPEG stream. Features such as multicasting, internet streaming and iSCSI recording are fully supported. FlexiDome IP cameras have built-in video motion detection and additional processing power for video content analysis systems.

FlexiDome IP cameras include picture performance enhancements such as NightSense for low-light scenes and Autoblack for low contrast scenes.

Supported by the award-winning Dinion digital imaging technology, they provide a proven, dependable solution for many security and surveillance requirements.

Functions

Progressive scan

To capture sharp images, even in busy scenes with high motion content, the Dinion camera uses progressive scan technology.

A quality image

With a 1/3-inch color CCD and Bosch's advanced digital signal processing, the FlexiDome IP provides professional image quality. Automatically activate the NightSense feature to extend sensitivity under low-light conditions by a factor of three in monochrome operation. Autoblack improves the overall contrast of an image in low contrast scenes, such as foggy weather conditions.

Efficient bandwidth and storage management

The cameras use H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution. The bandwidth of an H.264 stream using Main profile at 4CIF resolution is about the same as one MPEG-4 stream at 2CIF resolution. Bosch's innovative tri-streaming feature enables FlexiDome IP cameras to generate two independent H.264 streams and one M-JPEG stream simultaneously. This allows streaming of high-quality H.264 images for live viewing and recording while streaming M-JPEG images to another device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

FlexiDome IP cameras offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly, as well as Network Video Recorders (NVRs). The iSCSI storage target support enables the cameras to function as a conventional DVR, while streaming high-performance live video across the network.

Standard intelligence

With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system, that is built into all camera versions, is the perfect solution for applications where basic video content analysis features are required. This motion analysis algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper-detection capabilities.

Hardware enhanced

The hardware-enhanced version of the camera gives you the opportunity to upgrade the video content analysis features of the camera with the more advanced Intelligent Video Analysis (IVA) option. This option bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixels, texture, and object direction, and is activated by installing a license.

ONVIF conformance

The camera conforms to the ONVIF (Open Network Video Interface Forum) specification which guarantees interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information. They are automatically discovered and connected to network applications such as video management systems.

Tough design

The cast-aluminum housing, polycarbonate dome, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force. The enclosure contains the full-featured camera and integral varifocal lens. Ideal for outdoor use, the cameras are protected against water and dust to IP 66 (NEMA-4X) standards. The camera enclosure provides the extra protection necessary for applications such as schools, banks, prisons, parking garages, retail and industrial buildings.

Installation is quick and easy, as the camera comes completely assembled and ready to use. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, wall, corner and suspended ceiling. The compact, sleek design and virtually flush-mount appearance complements any decor.

Unsurpassed flexibility

There are many ways to access the camera's video: on a PC using a web browser, with the Bosch Video Management System, or with VIDOS. The camera is also ideal for use with a Divar 700 Series digital video recorder. By routing a video stream to a Bosch video decoder, you can also present the video with ultimate clarity on an analog monitor.

Cost effective, simple installation

Three power options, PoE (Power-over-Ethernet), 24 VAC and 12 VDC are available. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source. To increase system reliability, the camera can be simultaneously connected to both PoE and 12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used which allow continuous operation even during a power failure.

For trouble free network cabling, the cameras support Auto-MDIX.

FlexiDome IP cameras can be configured using the control buttons on the camera as an alternative to configuration over IP. Network parameters and basic camera set-up, such as lens set-up and back focus, are quickly and easily performed using the on-screen displays (OSD) and analog video service output.

Easy Upgrade

Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Access Security

Various security levels are available for accessing the network, the camera, and the data channels. As well as password protection with three levels, 802.1x authentication using a RADIUS is supported. To secure Web browser access use HTTPS with a SSL certificate stored in the camera. For total data protection, the video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional Encryption Site License.

Typical applications

- Museums and art galleries
- Shopping centers
- Offices
- Schools, colleges and universities
- Petrol / gas station

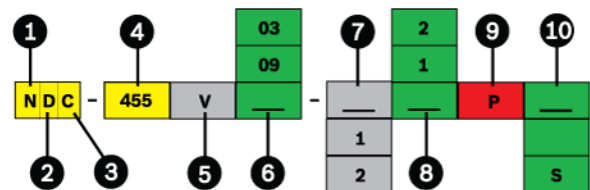
Certifications and Approvals

Region	Certification
Europe	CE Declaration of Conformity Model Identity Declaration
USA	FCC Declaration of Conformity

Electro Magnetic Compatibility

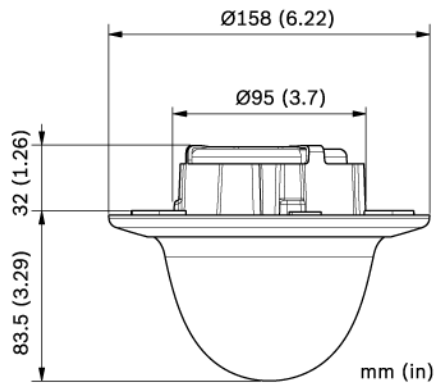
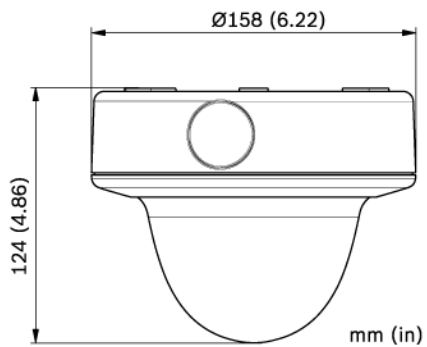
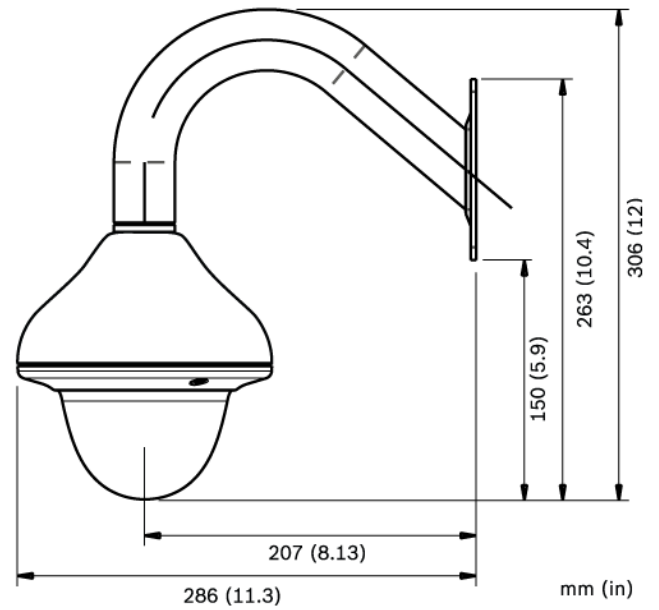
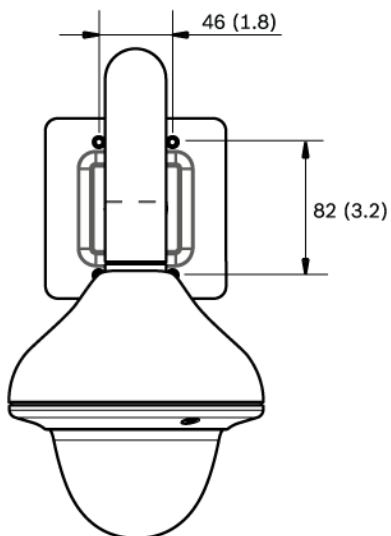
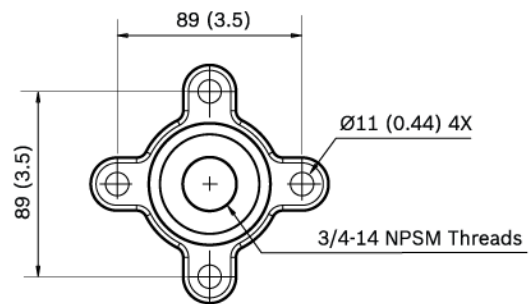
Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 CFR. 47 FCC Part 15: class B
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	As per IEC60068-2-6 (5 m/s ² , operational)

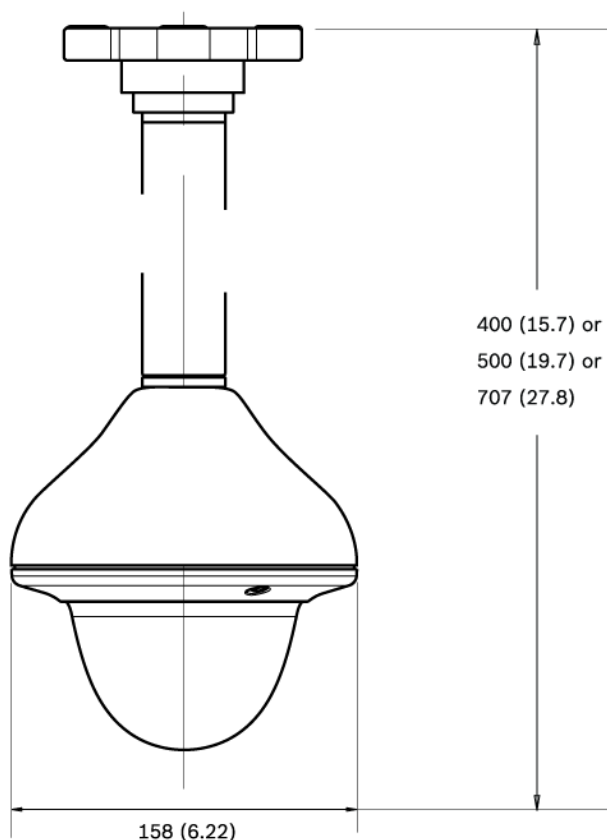
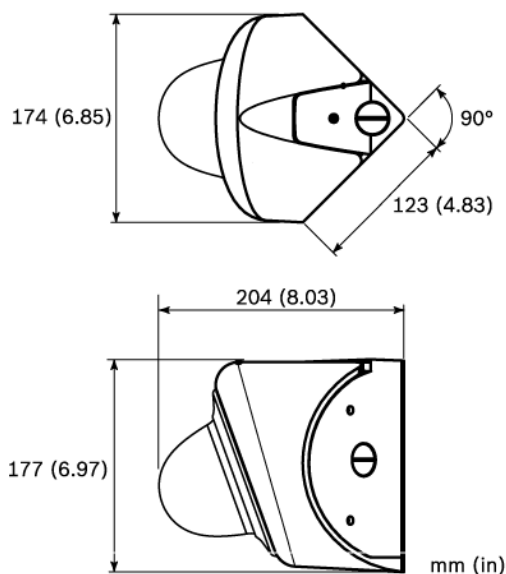
Installation/Configuration Notes



1	N	Network camera
2	D	Dome (FlexiDome fixed dome)
3	C	Color
4	455	Dinon performance
5	V	Varifocal lens, auto iris
6	03	2.8 to 10 mm F1.2
	09	9 to 22 mm F1.4
7	1	PAL 50 Hz
	2	NTSC 60 Hz
8	1	Motion+
	2	Designed for IVA *
9	P	PoE
10		Flush mount (blank)
	S	Surface mount

No license included

Flush Mounting**Surface Mounting****VDA-WMT-DOME –Pendant Wall Mount****VDA-PMT-DOME –Pendant Pipe Mount**

**VDA-CMT-DOME –Corner Mount****Parts Included****Quantity Component**

1	NDC-455 Series FlexiDome IP Camera
1	Lens adjustment cap (focus aid)
1	Safety instructions
1	Quick Install Guide
1	Mini DVD-ROM with manuals, software, and tools
1	Mounting hardware kit + screwdriver bit
1	RJ45 network connector
1	Template for flush mount

Technical Specifications**Electrical**

Model No.	Rated Voltage	Rated Frequency
NDC-455Vxx-1xP	24 VAC ±10%	50 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
NDC-455Vxx-2xP	24 VAC ±10%	60 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
Current Consumption	500 mA 650 mA IVA (12 VDC) 500 mA 650 mA IVA (24 VAC) 200 mA (PoE 48 VDC)	

Sensor

Type	1/3-inch, CCD
Active Pixels (PAL)	752 x 582
Active Pixels (NTSC)	768 x 494

Video

Video compression	H.264 (ISO/IEC 14496-10); M-JPEG, JPEG
Data rate	9.6 Kbps to 6 Mbps
Resolution	Horizontal x vertical (PAL/NTSC ips)
• 4CIF	704 x 576/480 (25/30 ips)
• CIF	352 x 288/240 (25/30 ips)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	I, IP
Frame rate	1 to 50/60 (PAL/NTSC) H.264 1 to 25/30 (PAL/NTSC) M-JPEG

Video Out

Signal	Analog composite (NTSC or PAL) for service
Connector	2.5 mm jack, 75 Ohm
Horizontal resolution	540 TVL
Video S/N	50 dB

Sensitivity (3200 K, scene reflectivity 89%)

	Full video (100 IRE)	Usable picture (50 IRE)	Minimum illumi- nation (30 IRE)
NDC-455V03 (F1.2)			
Color	2.6 lx (0.26 fc)	0.65 lx (0.065 fc)	0.30 lx (0.03 fc)
NightSense	1.04 lx (0.104 fc)	0.26 lx (0.026 fc)	0.012 lx (0.0012 fc)

NDC-455V09 (F1.4)

Color	2.9 lx (0.29 fc)	0.75 lx (0.075 fc)	0.37 lx (0.037 fc)
NightSense	1.25 lx (0.13 fc)	0.30 lx (0.03 fc)	0.14 lx (0.014 fc)

Color/NightSense	Auto, Forced
Signal-to-noise Ratio	> 50 dB
Dynamic Range	60 dB (10-bit processing)
BLC	Center window weighting
Gain	20 dB (max)
White Balance	ATW, ATWHold (2500 to 10000 K)
Shutter	Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Auto Black	Automatic continuous, Off
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Saw-tooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock, selectable
Controls	OSD with soft-key operation (multi-lingual)

Audio

Standard G.711	300 Hz to 3.4 kHz at 8 kHz sampling rate
Signal-to-noise ratio	> 50 dB

Input/output

Audio	1 x mono line in, 1 x mono line out
• signal line in	9 kOhm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kOhm typical, 2.3 Vpp at 32 Ohm typical, 1.7 Vpp at 16 Ohm typical
Alarm	1 non-isolated closing contact
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA

Software Control

Unit Configuration	Via web browser or Configuration Manager
Flicker Control	50/60 Hz, selectable
Software update	Flash ROM, remote programmable

Network

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, 802.1x, UPnP
Encryption	TLS 1.0, SSL, AES (optional)
Ethernet	STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE supply	IEEE 802.3af compliant

Optical

Varifocal lens	IR corrected, manual zoom and focus adjustment
Iris control	Automatic iris control
Viewing angle	
2.8 to 10 mm	Wide 100.8° x 73.7° (H x V) Tele 28.5° x 21.4° (H x V)
9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)

Mechanical

Weight	0.67 kg (1.48 lb) +SMB: 1.29 kg (2.84 lb)
Mounting	Flush mount or surface mount
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360° pan, 90° tilt, ±90° azimuth
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental

Operating temperature default (with heater off)	-20 °C to +50 °C (-4 °F to +122 °F) cold start
Operating temperature (with heater on)	-50 °C to +50 °C (-58 °F to +122 °F)
Storage temperature	-50 °C to +70 °C (-58 °F to +158 °F)
Operating humidity	5% to 93% relative humidity
Storage humidity	Up to 98% relative humidity
Impact protection	IEC 60068-2-75 test Eh, 50 J EN 50102, exceeding IK 10
Water/dust protection	IP 66 and NEMA-4X

Ordering Information**NDC-455V03-11P FlexiDome Color IP Camera** **NDC-455V03-11P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Flush mount

NDC-455V03-21P FlexiDome Color IP Camera **NDC-455V03-21P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Flush mount

NDC-455V03-12P FlexiDome Color IP Camera **NDC-455V03-12P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Flush mount

NDC-455V03-22P FlexiDome Color IP Camera **NDC-455V03-22P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Flush mount

NDC-455V09-11P FlexiDome Color IP Camera **NDC-455V09-11P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Flush mount

NDC-455V09-21P FlexiDome Color IP Camera **NDC-455V09-21P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Flush mount

NDC-455V09-12P FlexiDome Color IP Camera **NDC-455V09-12P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Flush mount

NDC-455V09-22P FlexiDome Color IP Camera **NDC-455V09-22P**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Flush mount

NDC-455V03-11PS FlexiDome Color IP Camera **NDC-455V03-11PS**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Surface mount

NDC-455V03-21PS FlexiDome Color IP Camera **NDC-455V03-21PS**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Surface mount

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Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Surface mount

Accessories**VDA-455SMB** **VDA-455SMB**

Surface mount box, high impact for VDC-455, VDM-455, VDC-485, VDN-498, NDC-455 and NDN-498

S1460 Service/Monitor Cable **S1460**

for FlexiDome analog and IP (2.5 mm connector to BNC), 1 m

UPA-2410-60 Power Supply **UPA-2410-60**

120 VAC, 60 Hz, 24 VAC, 10 VA Out

UPA-2450-60 Power Supply **UPA-2450-60**

120 VAC, 60 Hz, 24 VAC, 50 VA Out

UPA-2420-50 Power Supply **UPA-2420-50**

220 VAC, 50 Hz, 24 VAC, 20 VA Out

UPA-2450-50 Power Supply **UPA-2450-50**

220 VAC, 50 Hz, 24 VAC, 50 VA Out

VDA-455TBL Tinted bubble **VDA-455TBL**

Tinted bubble for FlexiDome series

VDA-455CBL Clear bubble **VDA-455CBL**

Clear Bubble for FlexiDome series

Ordering Information

Software Options

MVC-FIVA4-CAM

IVA 4.0 VCA software license for IP camera/
dome (e-license)

MVC-FIVA4-CAM
MVC-FENC-AES BVIP AES 128 Bit
Encryption

BVIP AES 128-bit encryption site license.
This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.

MVC-FENC-AES

NDN-498 FlexiDome2X Day/Night IP Cameras



Features

- ▶ **1/3-inch Day/Night CCD with progressive scan**
- ▶ **20-bit image processing technology**
- ▶ **Wide Dynamic Range, 2X-dynamic engine and SmartBLC**
- ▶ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**
- ▶ **Intelligence at the edge**
- ▶ **ONVIF conformant**
- ▶ **High-impact, vandal-resistant enclosure**

FlexiDome2X Day/Night IP cameras are progressive scan CCD cameras in a compact, high-impact rated, vandal-resistant housing.

Equipped with 20-bit DSP with 2X-dynamic, they have a wide dynamic range for sharper, more detailed images with outstanding color reproduction.

They can tri-stream video simultaneously – on two H.264 streams and one M-JPEG stream. Features such as multicasting, internet streaming and iSCSI recording are fully supported. FlexiDome2X IP cameras have built-in video motion detection and additional processing power for video content analysis systems.

Supported by the award-winning Dinion2X digital imaging technology, they provide a proven, dependable solution for many security and surveillance requirements, day or night.

Functions

Progressive scan

To capture sharp images, even in busy scenes with high motion content, the Dinion camera uses progressive scan technology.

Superior image quality

With a 1/3-inch CCD and Bosch's advanced digital signal processing, the FlexiDome2X Day/Night IP camera provides outstanding image quality in virtually all situations. The highly accurate 20-bit digital signal is automatically processed to reveal every detail of the image in both the high and low-light areas of the scene simultaneously.

20-bit Image Processing

The highly accurate digital signal processing optimally captures the detail in both bright highlights and deep shadows simultaneously. By combining 20-bit image processing and wide dynamic range, the FlexiDome2X maximizes the information visible in the picture even with strong backlight.

Wide Dynamic Range

The superior wide dynamic range performance for all lighting conditions reveals details previously unseen.

2X-Dynamic and SmartBLC

Using 2X-Dynamic technology, pixel-by-pixel analysis provides the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or without compromising dynamic range. Features such as Autoblack and Sharpness further improve the details in a scene, pixel by pixel.

Efficient bandwidth and storage management

The cameras use H.264 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution. The bandwidth of an H.264 stream using Main profile at 4CIF resolution is about the same as one MPEG-4 stream at 2CIF resolution. Bosch's innovative tri-streaming feature enables FlexiDome2X IP cameras to generate two independent H.264 streams and one M-JPEG stream simultaneously. This allows streaming of high-quality H.264 images for live viewing and recording while streaming M-JPEG images to another device at the same time. The M-JPEG video stream also provides easy integration with third-party JPEG or M-JPEG-compatible video management systems.

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For trouble free network cabling, the cameras support Auto-MDIX.

FlexiDome2X IP cameras can be configured using the control buttons on the camera as an alternative to configuration over IP. The On-Screen Display (OSD) simplifies back focus adjustment and network configuration, minimizing installation and support costs. The Lens Wizard automatically detects the lens type and helps focus the lens at the maximum opening to maintain proper focus.

Easy Upgrade

Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Access Security

Various security levels are available for accessing the network, the camera, and the data channels. As well as password protection with three levels, 802.1x authentication using a RADIUS is supported. To secure Web browser access use HTTPS with a SSL certificate stored in the camera. For total data protection, the video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional Encryption Site License.

Programmable Modes

Six independent, pre-programmed operating modes support typical applications, but are fully programmable for individual situations.

Day/Night switching

In night mode, the camera enhances low light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera can switch from color to monochrome mode automatically by sensing the illumination level, manually via the alarm input, or remotely via a web browser. An internal, through-the-lens IR detector enhances monochrome mode stability by preventing the camera from returning to color mode when IR-illumination is dominant.

Privacy masking

Four different privacy zones allow specific parts of a scene to be blocked. A mask for any part of the scene can be pre-programmed.

Default Shutter

The default shutter speed captures fast moving objects when sufficient light is available. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

SensUp Dynamic

By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Typical applications

- Prisons and correctional facilities
- Traffic monitoring (air, land and sea)
- Hotels, bars and nightclubs
- Commercial and government buildings
- City surveillance and safety
- Border control

Certifications and Approvals

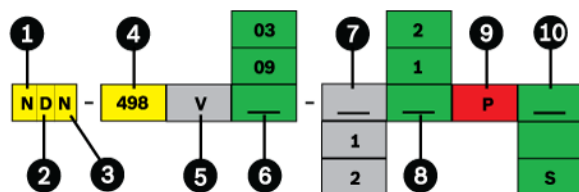
Region	Certification	
Europe	CE	Declaration of Conformity Model Identity Declaration
USA	FCC	Declaration of Conformity

Electro Magnetic Compatibility

Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 CFR. 47 FCC Part 15: class B
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	As per IEC60068-2-6 (5 m/s ² , operational)

Installation/Configuration Notes

Ordering chart

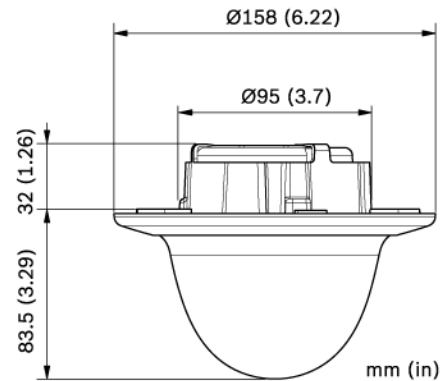


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	09	9 to 22 mm F1.4
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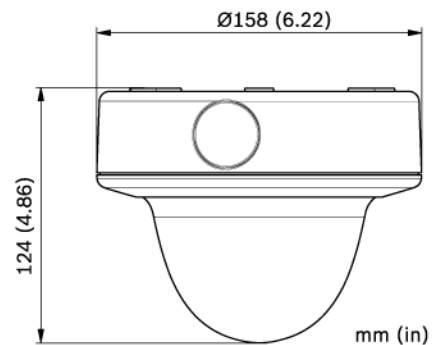
9	P	PoE
10		Flush mount (blank)
	S	Surface mount

* No license included

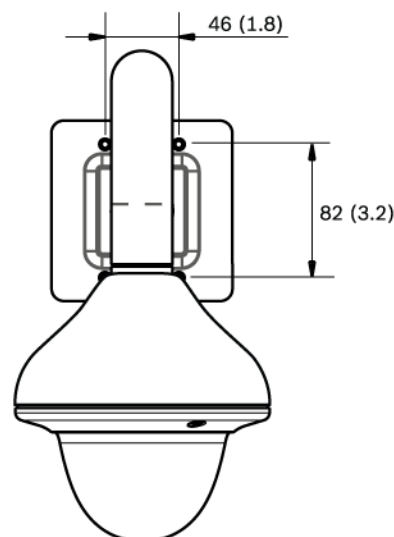
Flush Mounting

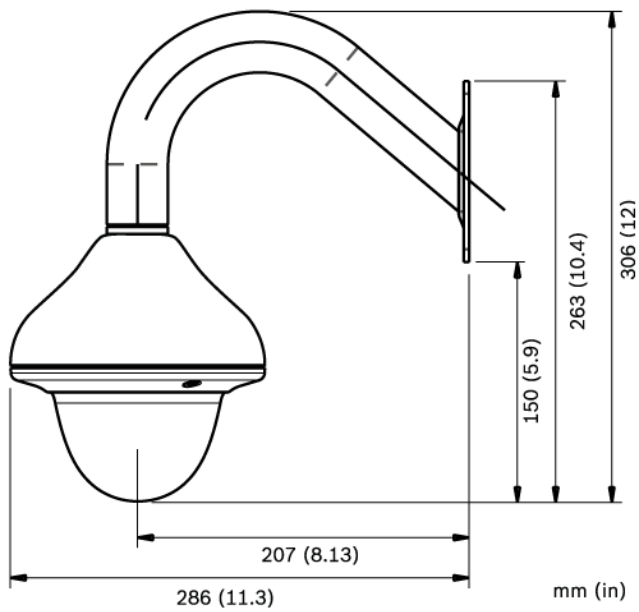
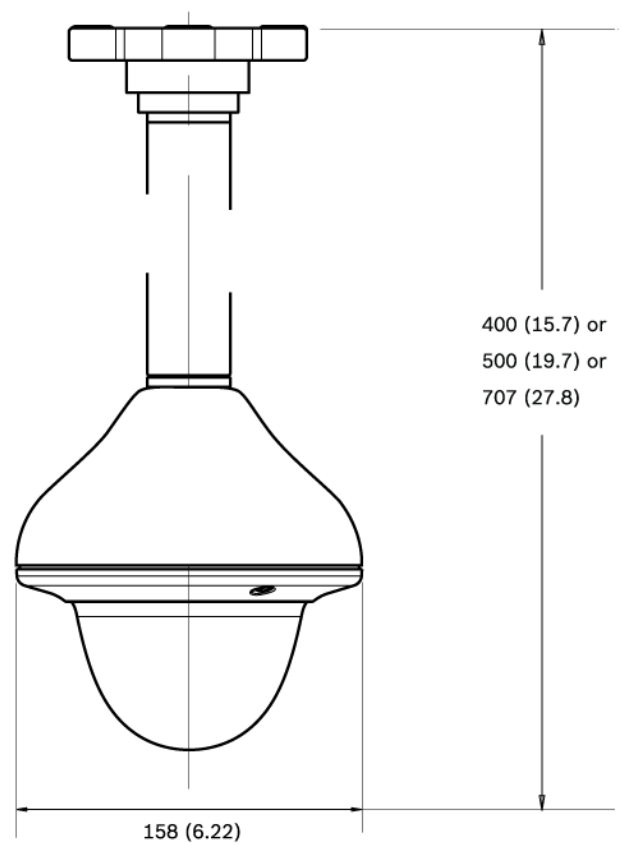
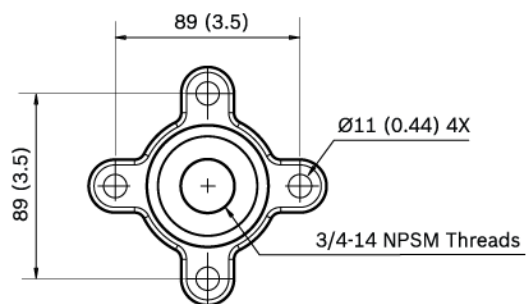
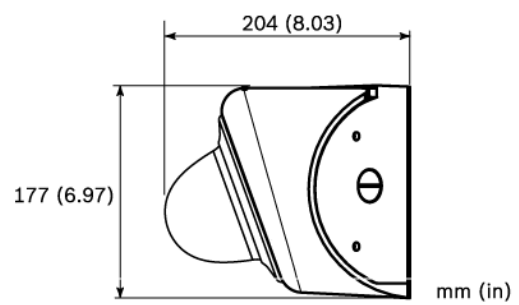
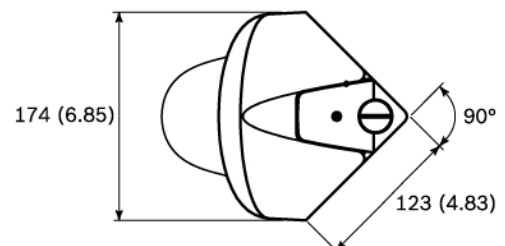


Surface Mounting



VDA-WMT-DOME –Pendant Wall Mount



**VDA-PMT-DOME –Pendant Pipe Mount****VDA-CMT-DOME –Corner Mount**

Parts Included

Quantity	Component
1	NDN-498 Series FlexiDome2X Day/Night IP Camera
1	Lens adjustment cap (focus aid)
1	Safety instructions
1	Quick Install Guide
1	Mini DVD-ROM with manuals, software, and tools
1	Mounting hardware kit + screwdriver bit
1	RJ45 network connector
1	Template for flush mount

Technical Specifications**Electrical**

Model No.	Rated Voltage	Rated Frequency
NDN-498Vxx-1xP	24 VAC ±10%	50 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
NDN-498Vxx-2xP	24 VAC ±10%	60 Hz
	12 VDC ±10%	
	Power-over-Ethernet	
Current Consumption	550 mA 700 mA IVA (12 VDC) 550 mA 700 mA IVA (24 VAC) 200 mA (PoE 48 VDC)	

Sensor

Type	1/3-inch CCD, WDR, dual shutter
Active Pixels (PAL)	752 x 582
Active Pixels (NTSC)	768 x 494

Video

Video compression	H.264 (ISO/IEC 14496-10); M-JPEG, JPEG
Data rate	9.6 Kbps to 6 Mbps
Resolution	Horizontal x vertical (PAL/NTSC ips)
• 4CIF	704 x 576/480 (25/30 ips)
• CIF	352 x 288/240 (25/30 ips)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	I, IP
Frame rate	1 to 50/60 (PAL/NTSC) H.264 1 to 25/30 (PAL/NTSC) M-JPEG

Video Out

Signal	Analog composite (NTSC or PAL) for service
Connector	2.5 mm jack, 75 Ohm
Horizontal resolution	540 TVL
Video S/N	50 dB

Sensitivity (3200 K, scene reflectivity 89%)

	Full video (100 IRE)	Usable picture (50 IRE)	Minimum illumination (30 IRE)
NDN-498V03 (F1.2)			
Color	2.48 lx (0.23 fc)	0.621 lx (0.058 fc)	0.28 lx (0.027 fc)
Color + SensUp 10x	0.248 lx (0.023 fc)	0.062 lx (0.0058 fc)	0.028 lx (0.0027 fc)
Monochrome	1.01 lx (0.093 fc)	0.23 lx (0.021 fc)	0.099 lx (0.0092 fc)
Monochrome + SensUp 10x	0.1 lx (0.0093 fc)	0.023 lx (0.0021 fc)	0.0099 lx (0.00092 fc)

NDN-498V09 (F1.4)

Color	2.7 lx (0.26 fc)	0.69 lx (0.064 fc)	0.321 lx (0.03 fc)
Color + SensUp 10x	0.27 lx (0.026 fc)	0.069 lx (0.0064 fc)	0.032 lx (0.003 fc)
Monochrome	1.1 lx (0.090 fc)	0.27 lx (0.026 fc)	0.11 lx (0.01 fc)
Monochrome + SensUp 10x	0.11 lx (0.01 fc)	0.027 lx (0.0026 fc)	0.011 lx (0.001fc)

Day/Night	Color, Mono, Auto
Modes	6 preset programmable modes
Dynamic range	120 dB (20-bit image processing)
Signal-to-Noise Ratio	>50 dB
Dynamic engine	2X-Dynamic, XF-Dynamic, SmartBLC+2X-Dynamic
SmartBLC	On (includes 2X-Dynamic) / Off
AGC	AGC On or Off (0 - 30 dB) selectable
White Balance	ATW, ATWhold and manual (2500 to 10000K)
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Sensitivity up	Adjustable from Off up to 10x
Auto Black	Automatic continuous, Off
Dynamic Noise Reduction	Auto, On/off selectable
Sharpness	Sharpness enhancement level selectable
Peak White Invert	On/Off
Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock, HV-lock and Genlock (Burst lock) selectable
Controls	OSD with soft-key operation (multi-lingual)

Audio

Standard G.711	300 Hz to 3.4 kHz at 8 kHz sampling rate
Signal-to-noise ratio	> 50 dB

Input/output

Audio	1 x mono line in, 1 x mono line out
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kOhm typical, 2.3 Vpp at 32 Ohm typical, 1.7 Vpp at 16 Ohm typical
Alarm	1 non-isolated closing contact
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA

Software Control

Unit Configuration	Via web browser or Configuration Manager
Flicker Control	50/60 Hz, selectable
Software update	Flash ROM, remote programmable

Network

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, 802.1x, UPnP
Encryption	TLS 1.0, SSL, AES (optional)
Ethernet	STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE SUPPLY	IEEE 802.3af compliant

Optical

Varifocal lens	IR corrected, manual zoom and focus adjustment
Iris control	Automatic iris control
Viewing angle	
2.8 to 10 mm	Wide 100.8° x 73.7° (H x V) Tele 28.5° x 21.4° (H x V)
9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)

Mechanical

Weight	0.67 kg (1.48 lb) +SMB: 1.29 kg (2.84 lb)
Mounting	Flush mount or surface mount
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360° pan, 90° tilt, ±90° azimuth
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental

Operating temperature default (with heater off)	-20 °C to +50 °C (-4 °F to +122 °F) cold start
Operating temperature (with heater on)	-50 °C to +50 °C (-58 °F to +122 °F)
Storage temperature	-50 °C to +70 °C (-58 °F to +158 °F)
Operating humidity	5% to 93% relative humidity
Storage humidity	Up to 98% relative humidity
Impact protection	IEC 60068-2-75 test Eh, 50 J EN 50102, exceeding IK 10
Water/dust protection	IP 66 and NEMA-4X

Ordering Information

NDN-498V03-11P FlexiDome2X Day/Night IP Camera	NDN-498V03-11P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Flush mount	
NDN-498V03-21P FlexiDome2X Day/Night IP Camera	NDN-498V03-21P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Flush mount	
NDN-498V03-12P FlexiDome2X Day/Night IP Camera	NDN-498V03-12P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Flush mount	
NDN-498V03-22P FlexiDome2X Day/Night IP Camera	NDN-498V03-22P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Flush mount	
NDN-498V09-11P FlexiDome2X Day/Night IP Camera	NDN-498V09-11P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Flush mount	
NDN-498V09-21P FlexiDome2X Day/Night IP Camera	NDN-498V09-21P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Flush mount	
NDN-498V09-12P FlexiDome2X Day/Night IP Camera	NDN-498V09-12P
Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Flush mount	

Ordering Information**NDN-498V09-22P FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Flush mount

NDN-498V09-22P**NDN-498V03-11PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Surface mount

NDN-498V03-11PS**NDN-498V03-21PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Surface mount

NDN-498V03-21PS**NDN-498V03-12PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Surface mount

NDN-498V03-12PS**NDN-498V03-22PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 2.8 to 10 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Surface mount

NDN-498V03-22PS**NDN-498V09-11PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Motion+, PoE, Surface mount

NDN-498V09-11PS**NDN-498V09-21PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Motion+, PoE, Surface mount

NDN-498V09-21PS**NDN-498V09-12PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, PAL, 50 Hz, Designed for IVA, PoE, Surface mount

NDN-498V09-12PS**NDN-498V09-22PS FlexiDome2X Day/Night IP Camera**

Vandal resistant, 1/3-inch Progressive Scan, H.264 dual stream, 2X DSP, WDR, 9 to 22 mm Varifocal lens, NTSC, 60 Hz, Designed for IVA, PoE, Surface mount

NDN-498V09-22PS**Ordering Information****Accessories****VDA-455SMB**

Surface mount box, high impact for VDC-455, VDM-455, VDC-485, VDN-498, NDC-455 and NDN-498

VDA-455SMB**S1460 Service/Monitor Cable**

for FlexiDome analog and IP (2.5 mm connector to BNC), 1 m

S1460**UPA-2410-60 Power Supply**

120 VAC, 60 Hz, 24 VAC, 10 VA Out

UPA-2410-60**UPA-2450-60 Power Supply**

120 VAC, 60 Hz, 24 VAC, 50 VA Out

UPA-2450-60**UPA-2420-50 Power Supply**

220 VAC, 50 Hz, 24 VAC, 20 VA Out

UPA-2420-50**UPA-2450-50 Power Supply**

220 VAC, 50 Hz, 24 VAC, 50 VA Out

UPA-2450-50**VDA-455TBL Tinted bubble**

Tinted bubble for FlexiDome series

VDA-455TBL**VDA-455CBL Clear bubble**

Clear Bubble for FlexiDome series

VDA-455CBL**Software Options****MVC-FIVA4-CAM**

IVA 4.0 VCA software license for IP camera/dome (e-license)

MVC-FIVA4-CAM**MVC-FENC-AES BVIP AES 128 Bit Encryption**

BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.

MVC-FENC-AES

NWD-455 FlexiDome IP Cameras



Features

- ▶ **High-impact, vandal-resistant enclosure**
- ▶ **Advanced color CCD network dome camera**
- ▶ **NightSense for low light situations**
- ▶ **High-performance H.264, MPEG-4, and M-JPEG**
- ▶ **Direct-to-iSCSI recording**
- ▶ **Storage efficient tri-streaming: Dual MPEG-4/H.264 and M-JPEG simultaneously**
- ▶ **Power over Ethernet (IEEE 802.3af compliant)**
- ▶ **ONVIF conformant**

The NWD-455 FlexiDome IP is a high-performance, 1/3-inch CCD network camera, designed to ensure the highest possible image quality at all times. This ultra-compact and vandal-resistant camera provides DVD-like quality MPEG-4 video at up to 25 and 30 images per second (for PAL and NTSC respectively) or H.264 encoding. Network video signals are sent over IP networks and can be received and displayed on a PC web browser, viewed and recorded using the DiBos hybrid recording system, or managed as part of a VIDOS or BVMS video management system. Moreover, a BOSCH Video over IP (BVIP) decoder can decode the stream for viewing on a CVBS or VGA monitor.

FlexiDome IP uses H.264 or MPEG-4 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering the best image quality and resolution. The analog video service output and the on-screen displays (OSD) simplify focus adjustment and network configuration, leading to lower installation and support

costs. Power over Ethernet (PoE) makes installation easier and more cost-effective, since these cameras no longer require AC power.

Functions

H.264 Baseline Profile Encoding

Firmware version 4.0 and higher enables the camera to use H.264 Baseline Profile to encode the video signal. This reduces the required bit rate for a given quality setting, or increases the quality while keeping the bit rate setting.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires double the performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

MPEG-4 video encoding

The FlexiDome MPEG-4 encoder creates high-quality streaming video at low bit rates, minimizing bandwidth and storage requirements, which further reduces costs. Each FlexiDome IP camera can deliver up to 25 and 30 images per second (PAL and NTSC) at true 4CIF video resolution.

ONVIF

ONVIF (Open Network video Interface Forum) compliancy ensures integration with third party management systems and video network devices.

Intelligence

The FlexiDome IP supports increased intelligence at the edge that provides powerful tamper detection for various combined picture cases arising from: video loss, masking, hooding, defocusing, and diverted camera. Bosch also offers Intelligent Video Motion Detection (IVMD) as an additional licensable option. This provides video content analysis (VCA) directly at the video input for even more advanced VCA.

Tri-streaming video

FlexiDome IP cameras can generate two separate H.264/MPEG-4 video streams and one JPEG stream simultaneously, while giving access to five users at a time. This advanced tri-streaming capability, not typically found in other IP CCTV systems, enables the user to optimize live viewing and recording requirements to meet specific site and enterprise needs. For example, BOSCH Video over IP Systems (BVIP) can be configured to record video at one quality setting (e.g. 3.75 IPS at 2CIF), while simultaneously providing live images at the best possible image quality (e.g. 30 IPS at 4CIF). Alternatively, the system deliver a high bandwidth, H.264/MPEG-4 stream to a local LAN user, while simultaneously streaming a low bandwidth H.264/MPEG-4 stream to a remote user over a WAN connection, while using the JPEG stream for remote viewing, for instance, on a PDA.

Power options

Three power options, PoE, 24 VAC (12 to 28 VAC) and 12 VDC (+11 to +36 VDC), are available on the NWD-455. Utilizing PoE makes installation easier and more cost-effective, since cameras do not require a local AC power source. Additionally, they can use an uninterruptible power supply (UPS), which will allow continuous operation, even during a power failure, e.g. in emergencies.

OSD-based network setup

Network parameters and basic camera set-up, such as lens set-up and back focus, are quickly and easily performed using the on-screen displays (OSD) and analog video service output. Unlike other IP cameras, no network connection, PC configuration utilities, or other tools are required to set up FlexiDome IP.

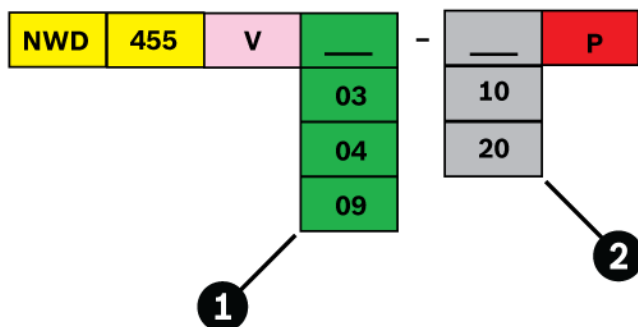
Recording

The FlexiDome IP cameras offer unparalleled recording options – network-attached utilizing iSCSI devices, and of course centrally, using network video recorders (NVRs). The iSCSI RAID 5 storage support enables a camera to act as a conventional DVR, while streaming high-performance live video across the network. The cameras also offers 10 Mb internal RAM storage.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity
Safety	acc. to EN 60950-1 (CE)	
	acc. to UL 60950-1	
Immunity	acc. to EN 50130-4 (CE)	
Emission	acc. to EN 55022 class B (CE)	
	acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE)	
	acc. to FCC CFR 47 Part 15, Class B	
	acc. to AS/NZS CISPR 22 (equal to CISPR 22)	

Installation/Configuration Notes



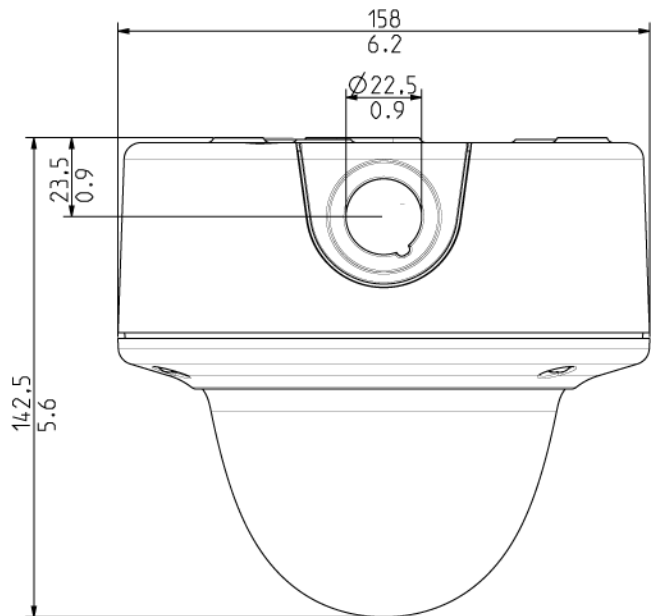
1 03 2.6 to 6 mm F1.4

04 3.7 to 12 mm F1.6

09 9 to 22 mm F1.4

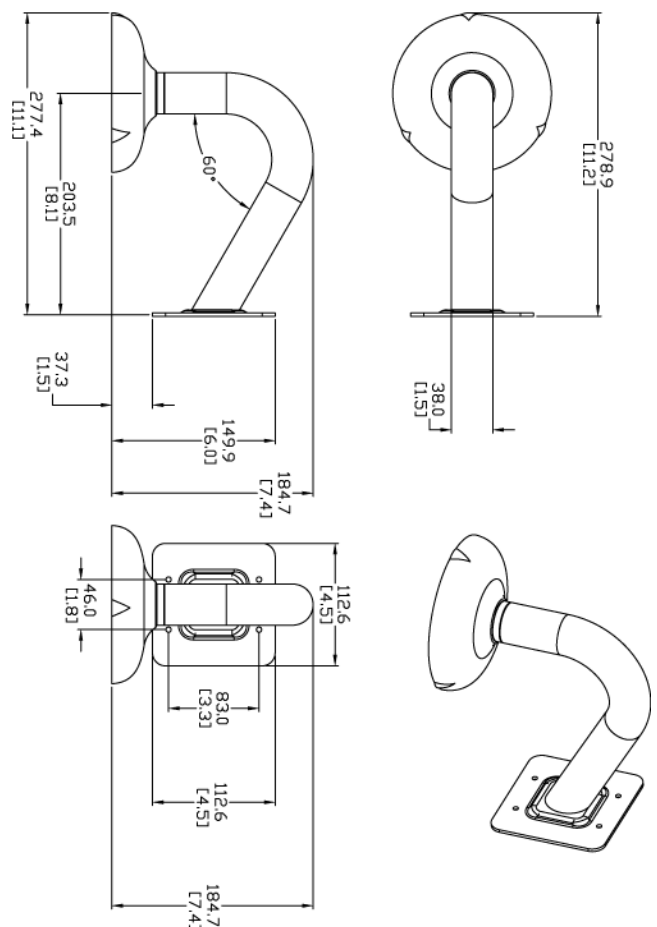
2 10 PAL color or CCIR mono

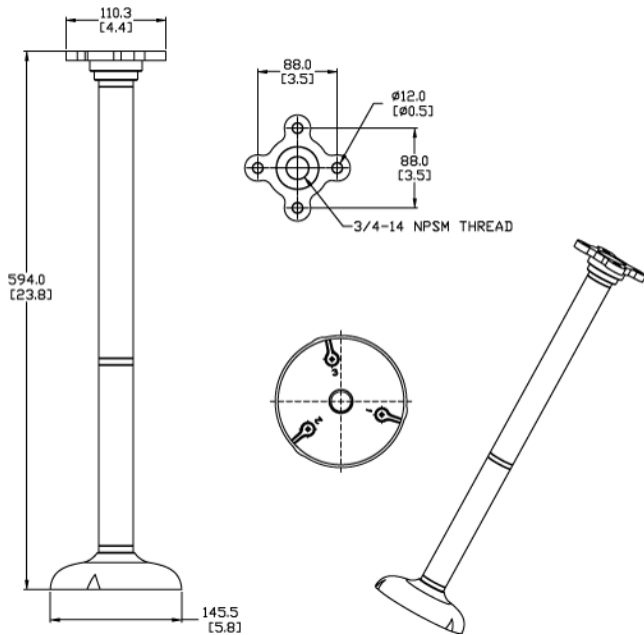
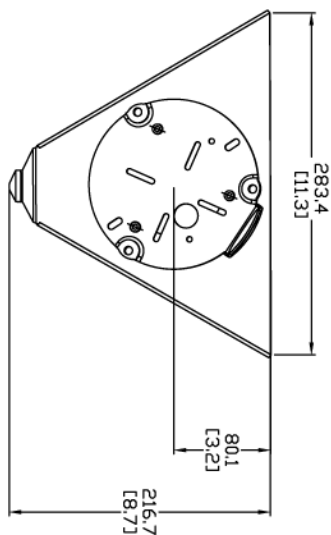
20 NTSC color or EIA mono



Dimensions in mm (in)

VDA-NWDWMT Wall Mount



VDA-NWDPMT Pipe Mount**VDA-NWDCMT Corner Mount****Parts Included**

Quantity	Component
1	FlexiDome IP Camera
1	Focus aid
1	Quick Installation Guide
1	CD-ROM with manual, software, and tools

Technical Specifications**Electrical****Power**

Input voltage	+11 to +36 VDC (750 mA)
	12 to 28 VAC, 45/65 Hz* (850 mA)
	PoE, IEEE 802.3af
Power consumption	10.5 VA (max)
Connector	3-pole push-in

Video

Video compression	MPEG-4/H.264; M-JPEG
GOP structure	I, IP
Data rate	9.6 Kbps to 6 Mbps (const. and variable)
Sensor	1/3-inch interline CCD

Sensor matrix

PAL	752 x 582
NTSC	768 x 494

Resolutions and frame rates	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120

Video out	1 x
signal	Analog composite (NTSC or PAL)
connector	2.5 mm jack socket, 75 ohm
Video S/N	50 dB

Sensitivity (3200 K, scene reflectivity 89%)	Usable picture (30 IRE)	Usable picture (50 IRE)	Full video (100 IRE)
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NWD-455V03

NightSense	0.18 lx (0.016 fc)	0.39 lx (0.036 fc)	1.6 lx (0.15 fc)
color	0.44 lx (0.041 fc)	0.98 lx (0.091 fc)	3.9 lx (0.36 fc)

NWD-455V04

NightSense	0.23 lx (0.021 fc)	0.5 lx (0.048 fc)	2.0 lx (0.19 fc)
color	0.58 lx (0.053 fc)	1.3 lx (0.12 fc)	5.1 lx (0.48 fc)

NWD-455V09

NightSense	0.18 lx (0.016 fc)	0.39 lx (0.036 fc)	1.6 lx (0.15 fc)
color	0.44 lx (0.041 fc)	0.98 lx (0.091 fc)	3.9 lx (0.36 fc)

BLC	Center window weighting
Gain	20 dB (max)
White balance	Auto (2500 to 10000 K), AWB hold
Auto black	On/off selectable
Electronic shutter	
PAL	1/50 to 1/150000 s (auto),
NTSC	1/60 to 1/150000 s (auto)

Optical

Varifocal	IR-corrected, manual zoom and focus adjustment
Iris control	Automatic
Viewing angle 2.6 to 6 mm	Wide 98.5° x 75.3° (H x V) Tele 48.1° x 36.2° (H x V)
Viewing angle 3.7 to 12 mm	Wide 76.1° x 55.8° (H x V) Tele 23.8° x 17.9° (H x V)
Viewing angle 9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)

Software control

Unit configuration	Via web browser or Configuration Manager
Flicker control	50/60 Hz, selectable
Sharpness	Horizontal and vertical, symmetrical
Firmware	Flash ROM, remote update

Network

Protocols	Telnet, RTP, HTTP, ARP, TCP, UDP, IP, ICMP, IGMPv2/v3, SNMP, 802.1x
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Overall unit delay	120 ms (MPEG-4)
PoE	IEEE 802.3af compliant

Mechanical

Dimensions (H x W x D)*	See drawing
Weight (without lens)	Approx. 1.8 kg (3.96 lb)
Mounting	
Color	White (RAL 9010), black inner liner
Material	
dome bubble	Polycarbonate, clear, UV-blocking, anti-scratch coating
Trim ring, camera body	Aluminum
Adjustment range	360° pan, 90° tilt, ±90° azimuth

Environmental

Operating temperature	-10 °C to +40 °C (+14 °F to +104 °F)
Storage temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Humidity	20% to 80% relative humidity (noncondensing)
Water/dust protection	IP 54, NEMA-3R

Ordering Information

NWD-455V03-10P FlexiDomeXT IP Camera PAL, 2.6 to 6 mm F1.4 lens	NWD-455V03-10P
NWD-455V03-20P FlexiDomeXT IP Camera NTSC, 2.6 to 6 mm F1.4 lens	NWD-455V03-20P
NWD-455V04-10P FlexiDomeXT IP Camera PAL, 3.7 to 12 mm F1.6 lens	NWD-455V04-10P
NWD-455V04-20P FlexiDomeXT IP Camera NTSC, 3.7 to 12 mm F1.6 lens	NWD-455V04-20P
NWD-455V09-10P FlexiDomeXT IP Camera PAL, 9 to 22 mm F1.4 lens	NWD-455V09-10P
NWD-455V09-20P FlexiDomeXT IP Camera NTSC, 9 to 22 mm F1.4 lens	NWD-455V09-20P
Accessories	
UPA-1509-60 Power Supply 120 VAC, 60 Hz, 15 VDC, 9 VA Out	UPA-1509-60
UPA-1509-50 Power Supply 220 VAC, 50 Hz, 15 VDC, 9 VA Out	UPA-1509-50
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
VDA-NWDPMPT Pendant mount for FlexiDome IP Series	VDA-NWDPMPT
VDA-NWDWMT Wall mount for FlexiDome IP Series	VDA-NWDWMT
VDA-NWDCMT Corner mount for FlexiDome IP Series	VDA-NWDCMT

NWD-495 FlexiDomeDN IP Cameras



Features

- ▶ **High-impact, vandal-resistant enclosure**
- ▶ **Advanced Day/Night camera with mechanically switching IR filter**
- ▶ **15-bit DSP technology with XF-dynamic extended dynamic range**
- ▶ **High-performance H.264, MPEG-4, and M-JPEG**
- ▶ **Direct-to-iSCSI recording**
- ▶ **Storage efficient tri-streaming: Dual MPEG-4/H.264 and M-JPEG simultaneously**
- ▶ **Power over Ethernet (IEEE 802.3af compliant)**
- ▶ **ONVIF conformant**

The NWD-495 FlexiDome^{DN} IP is a high-performance 1/3-inch CCD Day/Night network camera, designed to ensure the highest possible image quality at all times. This ultra-compact and vandal-resistant camera provides DVD-like quality MPEG-4 video at up to 25 and 30 images per second (for PAL and NTSC respectively) or H.264 encoding. Network video signals are sent over IP networks and can be received and displayed on a PC web browser, viewed and recorded using the DiBos hybrid recording system, or managed as part of a VIDOS or BVMS video management system. Moreover, send the stream to a BOSCH Video over IP (BVIP) decoder for viewing on a CVBS or VGA monitor.

The camera combines 15-bit digital video processing (which enhances sensitivity) and XF-Dynamic (which extends the dynamic range) to provide a sharper, more detailed image with outstanding accuracy in color reproduction. Depending on the available light, the NWD-495 automatically switches from color to

monochrome, enhancing sensitivity for IR illumination to provide high-quality images even in challenging low-light conditions.

FlexiDome IP uses H.264 or MPEG-4 compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently while delivering the best image quality and resolution. The analog video service output and the on-screen displays (OSD) simplify focus adjustment and network configuration, leading to lower installation and support costs. Power over Ethernet (PoE) makes installation easier and more cost-effective because cameras no longer need AC power

Functions

Day/Night Mode

In Night Mode, the NWD-495 provides enhanced night viewing by increasing the IR sensitivity. The IR filter can switch automatically from color to monochrome by sensing the illumination level or be remotely switched via a web browser. An internal, through-the-lens IR detector enhances monochrome mode stability by preventing the camera from returning to the color mode when IR illumination is dominant.

XF-Dynamic

The highly accurate 15-bit digital signal is automatically processed to reveal every detail of the image in both the highlight and low-light areas of the scene simultaneously.

Intelligence

The FlexiDome Day/Night IP supports increased intelligence at the edge that provides powerful tamper detection for various combined picture cases arising from: video loss, masking, hooding, defocusing, and diverted camera. Bosch also offers Intelligent Video Motion Detection (IVMD) as an additional licensable option. This provides video content analysis (VCA) directly at the video input for even more advanced VCA.

H.264 Baseline Profile Encoding

Firmware version 4.0 and higher enables the camera to use H.264 Baseline Profile to encode the video signal. This reduces the required bit rate for a given quality setting, or increases the quality while keeping the bit rate setting.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires double the performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

MPEG-4 Video Encoding

The FlexiDome MPEG-4 encoder creates high-quality streaming video at low bit rates, minimizing bandwidth and storage requirements, which further reduces costs. Each FlexiDome IP camera can deliver up to 25 and 30 images per second (PAL and NTSC) at true 4CIF video resolution.

ONVIF

ONVIF (Open Network video Interface Forum) compliance ensures integration with third party management systems and video network devices.

Tri-streaming Video

FlexiDome IP cameras can generate two separate H.264/MPEG-4 video streams and one JPEG stream simultaneously, while giving access to five users at a time. This advanced tri-streaming capability, not typically found in other IP CCTV systems, enables the user to optimize live viewing and recording requirements to meet specific site and enterprise needs. For example, BOSCH Video over IP Systems (BVIP) can be configured to record video at one quality setting (e.g. 3.75 IPS at 2CIF), while simultaneously providing live images at the best possible image quality (e.g. 30 IPS at 4CIF). Alternatively, the system deliver a high bandwidth, H.264/MPEG-4 stream to a local LAN user, while simultaneously streaming a low bandwidth H.264/MPEG-4 stream to a remote user over a WAN connection, while using the JPEG stream for remote viewing, for instance, on a PDA.

Power Options

Three power options, PoE, 24 VAC (12 to 28 VAC) and 12 VDC (+11 to +36 VDC), are available on the NWD-495. Utilizing PoE makes installation easier and more cost-effective, since cameras do not require a local AC power source. Additionally, they can use an uninterruptible power supply (UPS), which will allow continuous operation, even during a power failure, e.g. in emergencies.

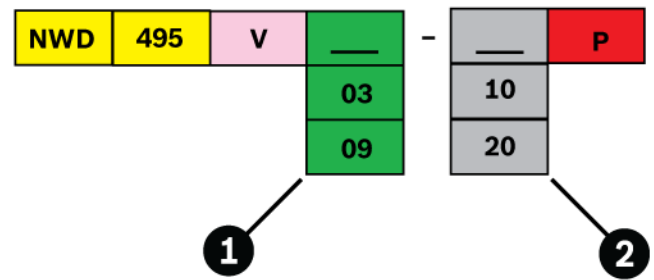
OSD-based Network Set-up

Network parameters and basic camera set-up, such as lens set-up and back focus, are quickly and easily performed using the on-screen displays (OSD) and analog video service output. Unlike other IP cameras, no network connection, PC configuration utilities, or other tools are required to set up FlexiDome IP.

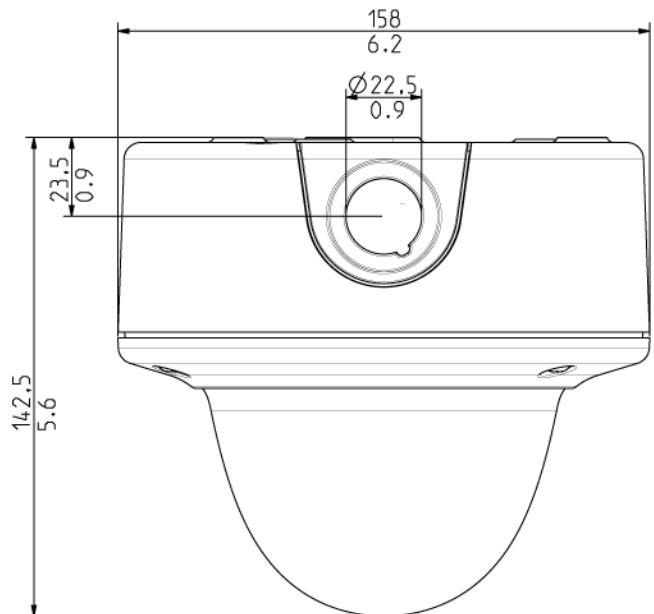
Recording

The FlexiDome IP cameras offer unparalleled recording options – network-attached utilizing iSCSI devices, and of course centrally, using network video recorders (NVRs). The iSCSI RAID 5 storage support enables a camera to act as a conventional DVR, while streaming high-performance live video across the network. The cameras also offer 10 Mb internal RAM storage.

Installation/Configuration Notes

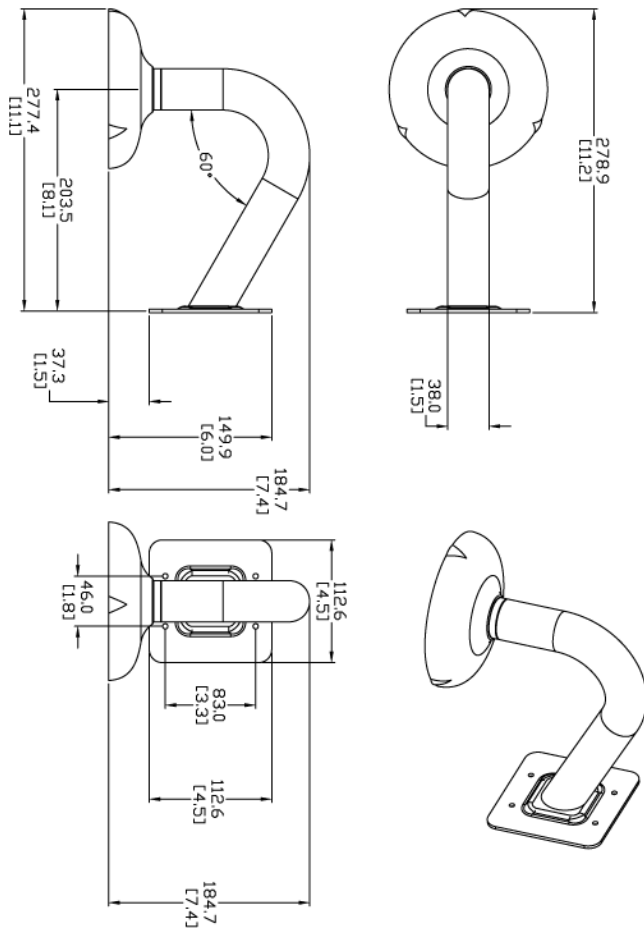
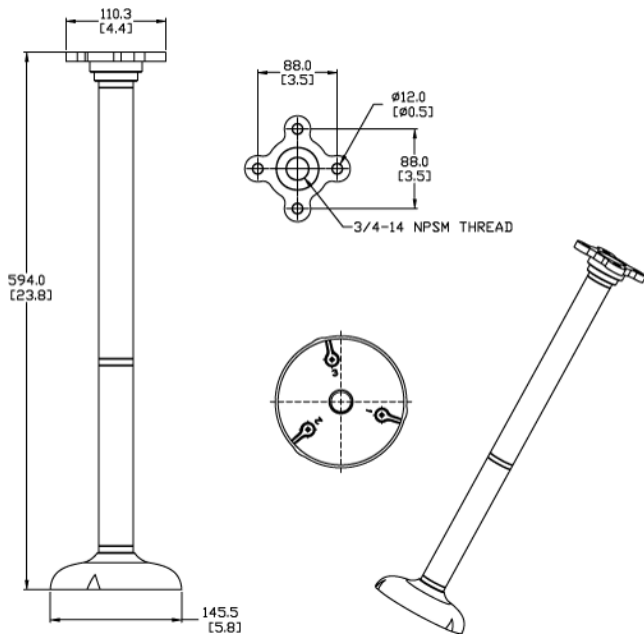
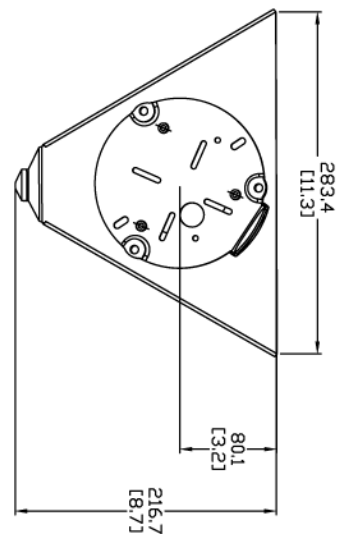


1	03	3 to 9 mm F1.4
	09	9 to 22 mm F1.4
2	10	PAL color or CCIR mono
	20	NTSC color or EIA mono



Certifications and Approvals

Safety	acc. to EN 60950-1 (CE)
	acc. to UL 60950-1
Immunity	acc. to EN 50130-4 (CE)
Emission	acc. to EN 55022 class B (CE)
	acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE)
	acc. to FCC CFR 47 Part 15, Class B
	acc. to AS/NZS CISPR 22 (equal to CISPR 22)

VDA-NWDWMT Wall Mount**VDA-NWDPMT Pipe Mount****VDA-NWDCMT Corner Mount****Parts Included**

Quantity	Component
1	NWD-495 FlexiDome ^{DN} IP Cameras
1	Focus aid
1	Quick Installation Guide
1	CD-ROM with manual, software, and tools

Technical Specifications**Electrical****Power**

Input voltage	+11 to +36 VDC (750 mA)
	12 to 28 VAC, 45/65 Hz* (850 mA)
	PoE, IEEE 802.3af
Power consumption	10.5 VA (max)
Connector	3-pole push-in

Video

Video compression	MPEG-4/H.264; M-JPEG	
GOP structure	I, IP	
Data rate	9.6 Kbps to 6 Mbps (const. and variable)	
Sensor	1/3-inch interline CCD	
Sensor matrix		
PAL	752 x 582	
NTSC	768 x 494	
Resolutions and frame rates	PAL	NTSC
4CIF: 25/30 IPS	704 x 576	704 x 480
2CIF: 25/30 IPS	704 x 288	704 x 240
half D1: 25/30 IPS	352 x 576	352 x 480
CIF: 25/30 IPS	352 x 288	352 x 240
QCIF: 25/30 IPS	176 x 144	176 x 120
Video out	1 x	

Video

signal	Analog composite (NTSC or PAL)		
connector	2.5 mm jack socket, 75 ohm		
Video S/N	50 dB		
Sensitivity (3200 K, scene reflectivity 89%)	Usable picture (30 IRE)	Usable picture (50 IRE)	Full video (100 IRE)

NWD-495V03

NightMode	0.11 lx (0.01 fc)	0.27 lx (0.026 fc)	1.1 lx (0.1 fc)
color	0.32 lx (0.031 fc)	0.69 lx (0.064 fc)	2.7 lx (0.26 fc)
NightMode + SenseUp	0.011 lx (0.001 fc)	0.027 lx (0.003 fc)	0.11 lx (0.01 fc)
color + SenseUp	0.032 lx (0.003 fc)	0.069 lx (0.007 fc)	0.27 lx (0.026 fc)

NWD-495V09

NightMode	0.066 lx (0.006 fc)	0.16 lx (0.016)	0.66 lx (0.06)
color	0.19 lx (0.018 fc)	0.41 lx (0.038)	1.62 lx (0.16)
NightMode + SenseUp	0.0066 lx (0.0006 fc)	0.016 lx (0.0016)	0.066 lx (0.006)
color + SenseUp	0.019 lx (0.0018 fc)	0.041 lx (0.0038)	0.162 lx (0.016)

SenseUp	Off; auto up to 10 x
Dynamic range	32 x
BLC	On/off; area; manual selectable
Gain	Fixed; auto with selectable limit (max 28 dB)
White balance	Auto (2500 to 10000 K); AWB hold; fixed selectable
Auto black	On/off selectable
Electronic shutter	Auto; fixed; flickerless; default
PAL	1/50 to 1/150000 s
NTSC	1/60 to 1/150000 s

Optical

Varifocal	IR-corrected, manual zoom and focus adjustment
Iris control	Automatic
Viewing angle 3 to 9 mm	Wide 90.3° x 66.4° (H x V) Tele 31.9° x 23.9° (H x V)
Viewing angle 9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)

Software control

Unit configuration	Via web browser or Configuration Manager
Flicker control	50/60 Hz, selectable
Contour	Horizontal and vertical, symmetrical
Firmware	Flash ROM, remote update

Network

Protocols	Telnet, RTP, HTTP(S), ARP, TCP, UDP, IP, ICMP, DHCP, IGMPv2/v3, SNMP, 802.1x
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Overall unit delay	120 ms (MPEG-4)
PoE	IEEE 802.3af compliant

Mechanical

Dimensions (H x W x D)*	See drawing
Weight (without lens)	Approx. 1.8 kg (3.96 lb)
Color	White (RAL 9010), black inner liner
Material	
dome bubble	Polycarbonate, clear, UV-blocking, anti-scratch coating
trim ring, camera body	Aluminum
Lens mounting	C/CS
Adjustment range	360° pan, 90° tilt, ±90° azimuth

Environmental

Operating temperature	-10 °C to +40 °C (+14 °F to +104 °F)
Storage temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Humidity	20% to 80% relative humidity (noncondensing)
Water/dust protection	IP 54, NEMA-3R

Ordering Information

NWD-495V03-10P FlexiDomeDN IP Camera PAL, 3 to 9 mm F1.4 lens	NWD-495V03-10P
NWD-495V03-20P FlexiDomeDN IP Camera NTSC, 3 to 9 mm F1.4 lens	NWD-495V03-20P
NWD-495V09-10P FlexiDomeDN IP Camera PAL, 9 to 22 mm lens	NWD-495V09-10P
NWD-495V09-20P FlexiDomeDN IP Camera NTSC, 9 to 22 mm lens	NWD-495V09-20P
Accessories	
UPA-1509-60 Power Supply 120 VAC, 60 Hz, 15 VDC, 9 VA Out	UPA-1509-60
UPA-1509-50 Power Supply 220 VAC, 50 Hz, 15 VDC, 9 VA Out	UPA-1509-50
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
VDA-NWDPMPT Pendant mount for FlexiDome IP Series	VDA-NWDPMPT
VDA-NWDWMT Wall mount for FlexiDome IP Series	VDA-NWDWMT
VDA-NWDCMT Corner mount for FlexiDome IP Series	VDA-NWDCMT

NDC-255-P and NDC-225-P IP Camera 200 Series



Features

- ▶ **Complete network video surveillance system inside a dome camera**
- ▶ **Progressive scan for sharp images of moving objects**
- ▶ **Tri-streaming: Dual H.264 and M-JPEG simultaneously**
- ▶ **ONVIF conformant**
- ▶ **Removable microSD/SDHC card offers days of storage inside camera**
- ▶ **PC surveillance software supports multiple camera monitoring**
- ▶ **Two-way audio and audio alarm**
- ▶ **Power over Ethernet (IEEE 802.3af compliant)**

The Bosch NDC-255-P and NDC-225-P IP dome cameras are ready-to-use, complete network video surveillance systems inside a compact camera. This camera brings Bosch's high-performance technology into the realm of small office and retail businesses by offering a cost-effective solution for a broad range of applications.

To use the camera as a stand-alone video surveillance system, simply take it out of the box, assemble it according to the quick installation guide, start it, and walk away – it's already recording. In this mode, no additional equipment is required.

For medium-to-large-scale or growing systems, the camera easily integrates with the Bosch Divar 700 Series recorder. It uses H.264 compression technology to give clear images while reducing bandwidth and storage by up to 30%.

Functions

Best-in-class image performance

The camera delivers the clearest images and most accurate colors within its class. Progressive scan ensures moving objects are always sharp.

Tri-streaming video

Tri-streaming allows a data stream to be encoded simultaneously according to three different, individually customized settings. Two types of streams can serve different purposes. For example, use H.264 stream for local recording and viewing, and the M-JPEG stream to provide compatibility with legacy DVRs.

Efficient recording

A removable microSD/SDHC card offers edge recording inside the IP dome camera. This card not only saves network bandwidth but also reduces the requirement for a high-capacity hard disk or DVR. When used with a microSD/SDHC card, the camera is a complete, self-contained surveillance system without the need for additional equipment.

The camera can also be used with an iSCSI server connected via the network to store long-term recordings.

16-channel PC surveillance software

The bundled PC surveillance software offers a user-friendly interface to support easy installation and configuration. A wizard allows the configuration of multiple cameras simultaneously using an auto detection device. Multiple cameras can be monitored in one screen and video clips on microSD/SDHC cards can be archived, searched, and exported in a single application.

ONVIF 1.0 compliant

The latest Open Network Video Interface Forum (ONVIF) standard ensures compatibility with other surveillance products. This will contribute to a reduction in future upgrade or migration costs.

Two-way audio and audio alarm

Two-way audio allows remote users to listen in on an area and communicate messages to visitors or intruders via an external loudspeaker (not included). Audio detection can be used to generate an alarm, if needed.

Tamper and motion detection

A wide range of configuration options is available for alarms signaling camera tampering. A built-in algorithm for detecting movement in the video can also be used for alarm signaling.

Power-over-Ethernet

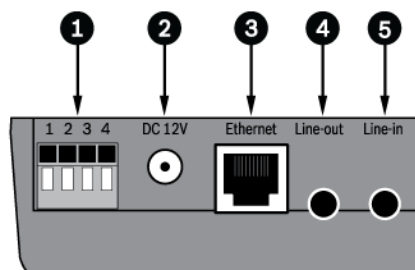
Power for the camera can be supplied via a Power-over-Ethernet (IEEE 802.3af) compliant network cable connection. With this configuration, only a single cable connection is required to view, power, and control the camera.

Certifications and Approvals

Region	Certification
Europe	CE
Safety	EU: EN 60950-1: 2006, Reference IEC 60950-1:2005
	US: UL 60950-1: 1st edition dated October 31, 2007
	Canada: CAN/CSA-C22.2 NO. 60950-1-03
EMC	EN 50130-4:1995 + A1:1998 + A2:2003
	FCC Part15 Subpart B, Class B
	EMC directive 2004/108/EC
	EN 55022 class B
	EN 61000-3-2 :2006
	EN 61000-3-3 : 1995+A1 :2001+A2 :2005
	EN 55024
	AS/NZS CISPR 22 (equal to CISPR 22)
	ICES-003 Class B
	EN 50121-4:2006
Product Certifications	CE, FCC, UL, cUL, C-tick, CB, VCCI
Power supply	CE, UL, cUL, PSE, CCC

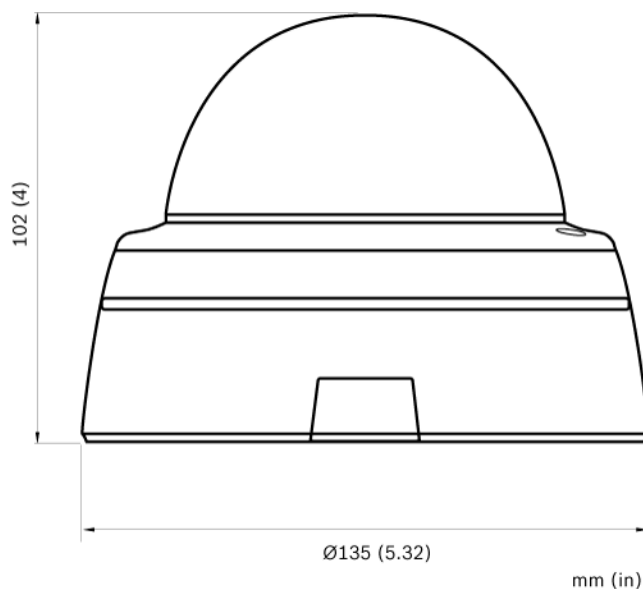
Installation/Configuration Notes

Connections



1	I/O
2	Power 12 VDC
3	Ethernet RJ45
4	Audio Line-out
5	Audio Line-in

Dimensions



Parts Included

Quantity	Component
1	NDC-255-P or NDC-225-P IP Dome camera
1	Quick Installation Guide
1	Installation paper sticker
1	Torx screwdriver for Dome cover
1	CD ROM with BVIP Lite Suite and documentation
1	Camera fixing screw kit
1	MicroSDHC card (warranty provided by card manufacturer)
1	Universal power supply with US, EU and UK plug

Technical Specifications

Power

Input voltage	+12 VDC or Power-over-Ethernet
Power consumption	4.1 W (max)

Video

Sensor type	¼-inch CMOS
Sensor pixels	640 x 480
Sensitivity	1.0 lux
Video resolution	VGA, QVGA
Video compression	H.264 MP (Main Profile); H.264 BP+ (Baseline Profile Plus); M-JPEG
Frame rate	30/25 fps: all resolutions

Lens

Lens type	NDC-255-P: Varifocal 2.8 to 10 mm, DC Iris F1.2 to close NDC-225-P: Fixed 4 mm, F1.5
Lens mount	Board mounted

Connection

Analog video out	2.5 mm jack for installation only
Alarm input	Short or DC 5V activation
Relay out	Input rating Maximum 1 A 24 VAC/VDC

Audio

Audio input	Built-in microphone
	Line in jack connector
Audio output	Line out jack connector
Audio communication	Two-way, full duplex
Audio compression	G.711

Local Storage

Memory card slot	Supports up to 32 GB microSD/SDHC card
Recording	Continuous recording, ring recording, alarm/events/schedule recording

Software Control

Unit configuration	Via web browser or PC surveillance software
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Network

Protocols	HTTP, HTTPS, SSL, TCP, UDP, ICMP, RTSP, RTP, RTCP, IGMPv2/v3, SMTP, POP3, FTP, DHCP client, ARP, DNS, DDNS, NTP, SNMP, UPnP
Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE	IEEE 802.3af compliant

Mechanical

Dimensions	Diameter: 135 mm (5.32 in) Height: 102 mm (4 in)
Weight	NDC-255-P: 548 g (1.21 lb) approx. NDC-225-P: 523 g (1.16 lb) approx

Environmental

Operating temperature Camera	-10 °C to +50 °C (14 °F to +122 °F)
Operating temperature Universal Power Supply Unit	0 °C to +40 °C (+32 °F to +104 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	10% to 80% relative humidity (non condensing)

Ordering Information

NDC-255-P IP Dome Camera IP Dome Camera System including varifocal lens and power supply	NDC-255-P
NDC-225-P IP Dome Camera IP Dome Camera System including fixed lens and power supply	NDC-225-P

VDN-498 Series Flexi-Dome 2X Dome Camera



Features

- ▶ **20-bit Image Processing Technology**
- ▶ **CCD sensor with Wide Dynamic Range**
- ▶ **Dynamic engine with Smart BLC**
- ▶ **Detail enhancement**
- ▶ **True Day/Night performance with switchable filter**
- ▶ **High impact, vandal-resistant, weatherproof housing**
- ▶ **Patented dome shape for 90° vertical view**

The FlexiDome 2X Day/Night camera is the ultimate solution for virtually any indoor or outdoor surveillance application. This vandal-resistant dome camera uses a 1/3-inch, wide dynamic range CCD sensor and incorporates advanced (20-bit) digital signal processing for outstanding picture performance.

The 20-bit image processing enhances sensitivity; the 2X-Dynamic extends the dynamic range. This unique combination provides a sharper, more detailed image with outstanding accuracy in color reproduction even under harsh lighting conditions.

The cast-aluminum housing, polycarbonate dome, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force. The enclosure contains the full-featured camera and integral varifocal lens. Ideal for outdoor use, the cameras are protected against water and dust to IP 66 (NEMA-4X) standards. The camera enclosure provides the extra protection necessary for applications such as schools, banks, prisons, parking garages, retail and industrial buildings.

Installation is quick and easy, as the camera comes completely assembled and ready to use. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, 4S (USA), wall, corner and suspended ceiling. The compact, sleek design and virtually flush-mount appearance complements any decor.

The FlexiDome 2X camera is an ideal solution for many surveillance applications, even under the most challenging lighting conditions. The day/night feature ensures the highest image quality possible at any time. Depending on the available light the camera will automatically switch from color to monochrome.

All FlexiDome cameras are supplied ready to operate. Six distinct pre-programmed operational modes are stored in the camera. Recall the mode that suits your application for optimized performance.

Functions

Detail in Extreme Lighting

In harsh lighting, the difference between the brightest and the darkest parts of a scene can be extreme. To produce a clear picture in these conditions, the CCD sensor in the FlexiDome 2X generates two images; one long exposure to resolve details in the scene's darkest areas, and one short exposure to resolve details in the scene's brightest areas. The Digital Signal Processor (DSP) of the FlexiDome 2X combines these dual shutter images, mixing pixels from each exposure to produce the most detailed image possible.

20-bit Image Processing

The highly accurate digital signal processing optimally captures the detail in both bright highlights and deep shadows simultaneously. By combining 20-bit image processing and wide dynamic range, the FlexiDome 2X maximizes the information visible in the picture even with strong backlighting.

Wide Dynamic Range

The superior wide dynamic range handling for all lighting conditions reveals details previously unseen.

2X-Dynamic and SmartBLC

Using 2X-Dynamic technology, pixel-by-pixel analysis provides the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or without compromising dynamic range.

Detail Enhancement

Features such as Autoblack and Sharpness further improve the details in a scene, pixel by pixel.

Day/Night Mode

The day/night mode provides enhanced night viewing by increasing the IR sensitivity. The IR filter can switch from color to monochrome automatically by either sensing the illumination level or via the alarm input. The filter can be switched manually via the alarm input, through the camera menu or via the Bilinx coaxial control interface. An internal through-the-lens IR detector enhances the monochrome mode stability, as it prevents reverting to the color mode when IR illumination is dominant. IR contrast is also measured and used to handle reflected IR light in outdoor scenes.

Privacy masking

Four different privacy zones allow specific parts of a scene to be blocked. Pre-program any part of the scene to be masked.

Default Shutter

The default shutter speed captures fast moving objects when sufficient light is available. When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

Bilinx Technology

Bilinx is a bidirectional communication capability embedded in the video signal of all Bosch FlexiDome cameras. Technicians can check status, change camera settings and even update firmware from virtually anywhere along the video cable. Bilinx reduces service and installation time, provides for more accurate set-up and adjustment, and improves overall performance. In addition, Bilinx uses the standard video cable to transmit alarm and status messages, providing superior performance without additional installation steps.

Ease of installation

Several features are available that make installation easy:

- Video connection BNC on flying lead
- Power connection on flying leads
- A built-in test pattern generator produces signals to test and fault-find cables.
- A multi-language On-Screen Display (OSD) increases user compatibility.

Programmable Modes

Six independent, pre-programmed operating modes support typical applications, but are fully programmable for individual situations. Switching between modes is easy via Bilinx or the external alarm input.

High efficiency

A high efficiency power supply improves maximum operating temperature.

Video Motion Detection

The built-in video motion detector allows you to select a programmable area with individual thresholds. The global scene change detector minimizes false alarms caused by sudden lighting condition changes, such as switching on or off the indoor or security lighting. When motion is detected, alarms can be displayed in the video signal, the output relay can be closed or an alarm message can be transmitted via Bilinx.

SensUp Dynamic

By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Typical applications

- Entrance foyer/lobby with glass
- Warehouses and loading bays
- Prisons and correctional facilities
- Airport locations including:
 - baggage handling
 - fuel and equipment storage
- Stadium

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	UL	
	FCC	Declaration of Conformity
Canada	CSA	

Electro Magnetic Compatibility

Emission	EN55022 class B, FCC part 15 class B, EN6100-3, EN50121-4
Immunity	EN50130-4 (CE), EN50121-4 (CE)
Vibration	IEC60068-2-6

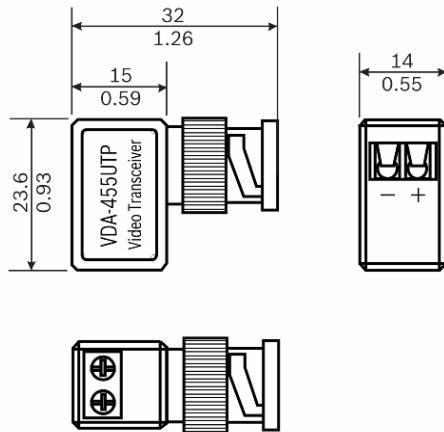
Safety

UL1950-1, CSA 22.2 No. 950-1, EN60950-1 (CE), UL60950, CAN/CSA No. 60950

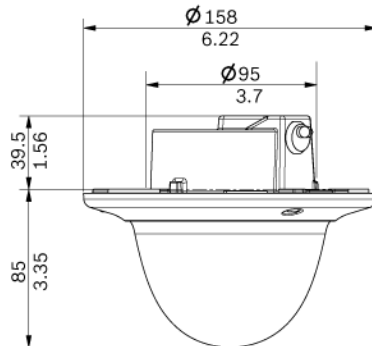
Installation/Configuration Notes

FlexiDome 2X model overview

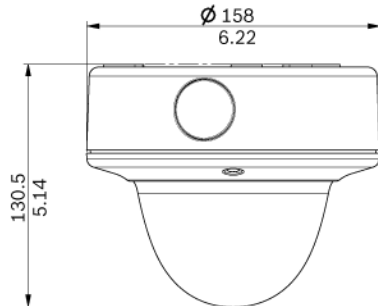
Model	Standard	Lens
VDN-498V03-11	PAL	2.8 to 10 mm F1.2
VDN-498V03-21	NTSC	2.8 to 10 mm F1.2
VDN-498V09-11	PAL	9 to 22 mm F1.4
VDN-498V09-21	NTSC	9 to 22 mm F1.4
VDN-498V06-11	PAL	6 to 50 mm F1.6
VDN-498V06-21	NTSC	6 to 50 mm F1.6

BNC to UTP Transceiver

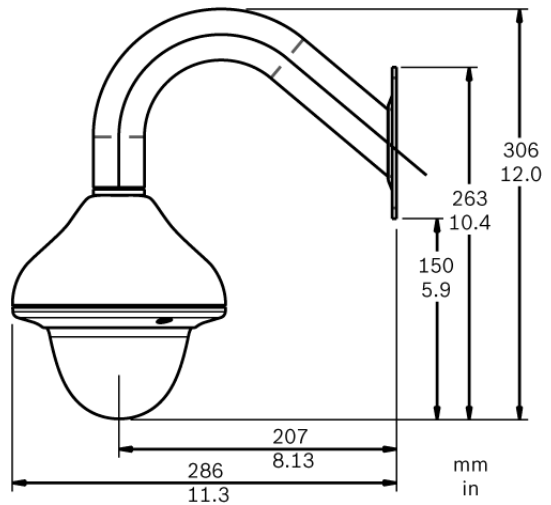
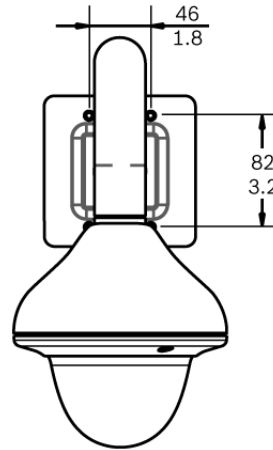
Dimensions in mm (in.)

Flush Mounting

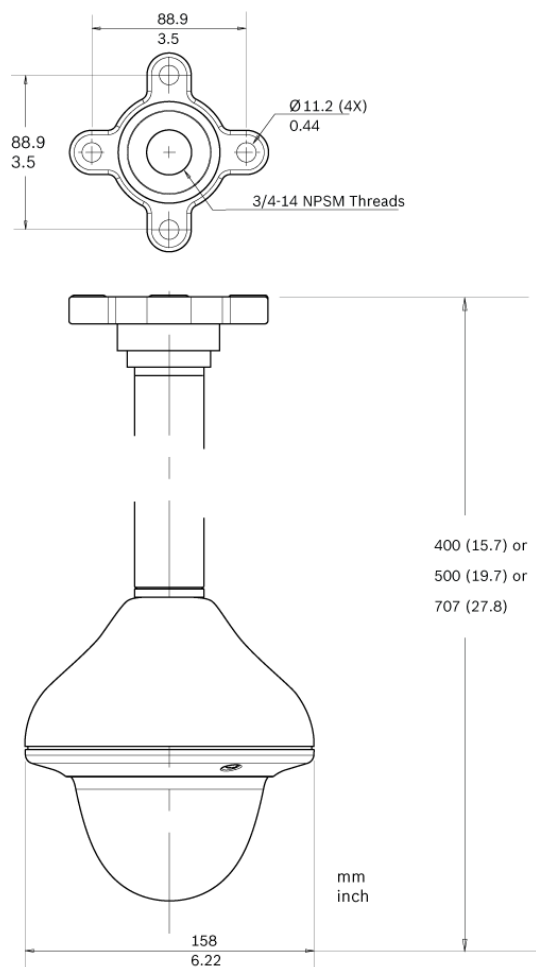
Dimensions in mm (in.)

VDA-455SMB-Surface Mount Box

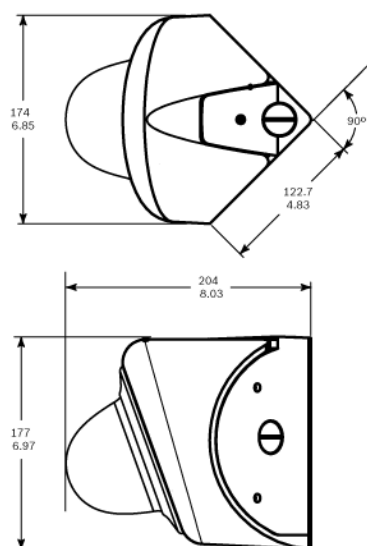
Dimensions in mm (in.) for surface mounting

VDA-445WMT-Pendant Wall Mount

Dimensions in mm (in.)

VDA-455PMT–Pendant Pipe Mount

Dimensions in mm (in.)

VDA-455CMT–Corner Mount

Dimensions in mm (in.) for corner mounting

Technical Specifications**Electrical**

Model No.	Rated Voltage	Rated Frequency
VDN-498V03/11	24 VAC \pm 10% 12 VDC \pm 10%	50 Hz
VDN-498V06/11	24 VAC \pm 10% 12 VDC \pm 10%	50 Hz
VDN-498V09/11	24 VAC \pm 10% 12 VDC \pm 10%	50 Hz
VDN-498V03/21	24 VAC \pm 10% 12 VDC \pm 10%	60 Hz
VDN-498V06/21	24 VAC \pm 10% 12 VDC \pm 10%	60 Hz
VDN-498V09/21	24 VAC \pm 10% 12 VDC \pm 10%	60 Hz
Power Consumption	400 mA (12 VDC) 350 mA (24 VAC)	
CCD Type	1/3-inch interline, WDR dual shutter	

Active Pixels

PAL Model:	752 x 582
NTSC Model	768 x 494

Sensitivity (3200 K, scene reflectivity 89%, transmission 68%)

	Full video (100 IRE)	Usable picture (50 IRE)	Usable picture (30 IRE)
VDN-498V03 (F1.2)			
Color	2.48 lx (0.23 fc)	0.621 lx (0.058 fc)	0.28 lx (0.027 fc)
Color + SensUp 10x	0.248 lx (0.023 fc)	0.062 lx (0.0058 fc)	0.028 lx (0.0027 fc)
Monochrome	1.01 lx (0.093 fc)	0.23 lx (0.021 fc)	0.099 lx (0.0092 fc)
Monochrome + SensUp 10x	0.1 lx (0.0093 fc)	0.023 lx (0.0021 fc)	0.0099 lx (0.00092 fc)
VDN-498V06 (F1.6)			
Color	3.53 lx (0.356 fc)	0.90 lx (0.09 fc)	0.42 lx (0.042 fc)
Color + SensUp 10x	0.352 lx (0.035 fc)	0.09 lx (0.009 fc)	0.042 lx (0.0042 fc)
Monochrome	1.43 lx (0.144 fc)	0.35 lx (0.035 fc)	0.14 lx (0.014 fc)
Monochrome + SensUp 10x	0.14 lx (0.014 fc)	0.03 lx (0.003 fc)	0.014 lx (0.0014 fc)
VDN-498V09 (F1.4)			
Color	2.7 lx (0.26 fc)	0.69 lx (0.064 fc)	0.321 lx (0.03 fc)
Color + SensUp 10x	0.27 lx (0.026 fc)	0.069 lx (0.0064 fc)	0.032 lx (0.003 fc)
Monochrome	1.1 lx (0.090 fc)	0.27 lx (0.026 fc)	0.11 lx (0.01 fc)
Monochrome + SensUp 10x	0.11 lx (0.01 fc)	0.027 lx (0.0026 fc)	0.011 lx (0.0011 fc)

Horizontal Resolution	540 TVL
Signal-to-Noise Ratio	>50 dB
Video Output	Composite video 1 Vpp, 75 ohm
Synchronization	Internal, Line Lock
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic flickerless, fixed selectable
Sensitivity up	Adjustable from Off up to 10x
Day/Night	Color, Mono, Auto
Auto Black	Automatic continuous, Off
Dynamic engine	XF-Dynamic, 2X-Dynamic, SmartBLC
Dynamic range	120 dB (20-bit image processing)
Dynamic Noise Reduction	Auto, On/off selectable
Sharpness	Sharpness enhancement level selectable
SmartBLC	On (includes 2X-Dynamic) / Off
AGC	AGC On or Off (0 - 30 dB) selectable
Peak White Invert	On/Off
White Balance	ATW, ATWhold and manual (2500 to 10000K)
Alarm Output	VMD or Bilinx
Synchronization	Internal or line lock
Cable Compensation	Up to 1000 m (3000 ft) coax without external amplifiers (automatic set-up in combination with Bilinx coaxial communication)
Camera ID	17 character editable string, position selectable
Test Pattern Generator	Color bars 100%, Greyscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Modes	6 preset programmable modes
Remote Control	Bilinx coaxial bi-directional communication
Video Motion Detection	One area, fully programmable
Privacy Masking	Four independent areas, fully programmable
Controls	OSD with soft-key operation (multi-lingual)

Optical

Varifocal	Manual zoom and focus adjustment
Iris control	Automatic iris control
Viewing angle	
2.8 to 10 mm	Wide 100.8° x 73.7° (H x V) Tele 28.5° x 21.4° (H x V)
9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)
6 to 50 mm	Wide: 43.4° x 32.4° (H x V) Tele: 5.8° x 4.4° (H x V)

Mechanical

Dimensions	See drawings
Weight	740 g (1.63 lb)
Mounting	Flush on hollow surface with three (3) screws in a 4S electrical box
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360° pan, 90° tilt, ±90° azimuth
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Aluminum

Environmental

Operating temperature default (with heater off)	-30 °C to +55 °C (-22 °F to +131 °F)
Operating temperature (with heater on)	-50 °C to +55 °C (-58 °F to +131 °F)
Storage temperature	-55 °C to +70 °C (-40 °F to +158 °F)
Operating humidity	5% to 93% relative humidity
Storage humidity	Up to 98% relative humidity
Impact protection	IEC 60068-2-75 test Eh, 50 J EN 50102, exceeding IK 10
Water/dust protection	IP 66 and NEMA-4X

Ordering Information

Accessories

VDA-455SMB Surface mount box, high impact for VDC-455, VDM-455, VDC-485, VDN-498, NDC-455 and NDN-498	VDA-455SMB
VDA-445WMT Wall mounting bracket	VDA-445WMT
VDA-455CMT Corner mounting bracket for interior corner	VDA-455CMT
VDA-455PMT Pendant pipe mount	VDA-455PMT
S1460 Service/Monitor Cable for FlexiDome analog and IP (2.5 mm connector to BNC), 1 m	S1460
UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	UPA-2410-60
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
VDA-455TBL Tinted bubble Tinted bubble for FlexiDome series	VDA-455TBL
VDA-455CBL Clear bubble Clear Bubble for FlexiDome series	VDA-455CBL
EX12LED-3BD-8M Infrared Illuminator EX12LED IR Illuminator, 850 nm, 30 deg beam	EX12LED-3BD-8M

Ordering Information

EX12LED-3BD-8W Infrared Illuminator EX12LED, IR Illuminator, 850 nm, 60 deg beam	EX12LED-3BD-8W
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EX12LED-3BD-9M Infrared Illuminator EX12LED IR Illuminator, 940 nm, 30 deg beam	EX12LED-3BD-9M
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EX12LED-3BD-9W Infrared Illuminator EX12LED, IR Illuminator, 940 nm, 60 deg beam	EX12LED-3BD-9W
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Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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VDC-485 Series Dome Cameras FlexiDome XF



Features

- ▶ **High impact, vandal-resistant, weatherproof housing**
- ▶ **NightSense for low light conditions**
- ▶ **15-bit DSP technology**
- ▶ **XF-Dynamic for wide dynamic range**
- ▶ **540 TVL color resolution**
- ▶ **SensUp 10 x extended sensitivity**
- ▶ **Bilinx bi-directional communication**
- ▶ **Patented dome shape for 90° vertical view**

The FlexiDome^{XF} series are the ultimate solutions for virtually any indoor or outdoor surveillance application. These color dome cameras are high-performance, vandal-resistant units with NightSense.

The cast-aluminum housing, polycarbonate dome, and hardened inner liner can withstand the equivalent of 55 kg (120 lbs) of force. The enclosure contains full-featured color cameras with 1/3-inch CCD and integral varifocal lenses. Ideal for outdoor use, the cameras are protected against water and dust to IP 66 (NEMA-4X) standards.

Installation is quick and easy, since the cameras come completely assembled and ready to use. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, 4S (USA), wall, corner and suspended ceiling.

The FlexiDome^{XF} cameras are an ideal solution for many surveillance applications, even under the most challenging lighting conditions. Their compact, sleek design and virtually flush-mount appearance will complement any decor. The camera enclosure provides the extra protection necessary for applications such as in schools, banks, prisons, parking garages, retail and industrial buildings.

Functions

Technology

The FlexiDome^{XF} series incorporate the latest technology adopted from the high-performance Dinion^{XF} Color cameras. This technology ensures the highest possible image quality at all times and under all conditions. Based on a unique combination of 15-bit digital video processing and XF-dynamic, these cameras provide excellent sensitivity, with up to 32x extended dynamic range. This delivers a sharper, more detailed image with outstanding accuracy in color reproduction.

Operation

All cameras feature video motion detection, auto black, default shutter and back light compensation for optimum performance in all lighting conditions. The lens wizard and focus aid make lens adjustment easy and straightforward, and ensure proper focus throughout the 24-hour cycle. All cameras incorporate Bilinx, a technology that allows technicians to set up, control the camera settings, and even update firmware remotely over the video cable.

Controls and Indicators

- OSD
- 5-key operation

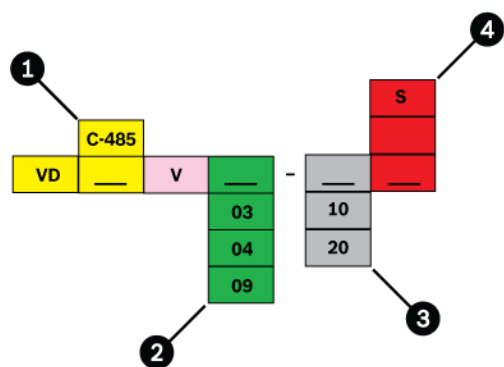
Interconnections

- Video connection BNC on flying lead
- Power connection on flying leads

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity VDx 355-455-485-495
USA	FCC	Declaration of Conformity VDx 355-455-485-495
Safety	UL 1950; CSA 22.2 No. 950; EN 60950 (CE)	
Immunity	EN 50130-4 (CE)	
Emission	EN 50022 class B (CE); FCC, class B part 15	
Water/dust protection	IP 66 and NEMA-4X	

Installation/Configuration Notes



1

C-485 Color (with NightSense)

2

03 3 to 9.5 mm F1.0 (Color version)

04 3.7 to 12 mm F1.6

09 9 to 22 mm F1.4

3

10 PAL color or CCIR mono

20 NTSC color or EIA mono

4

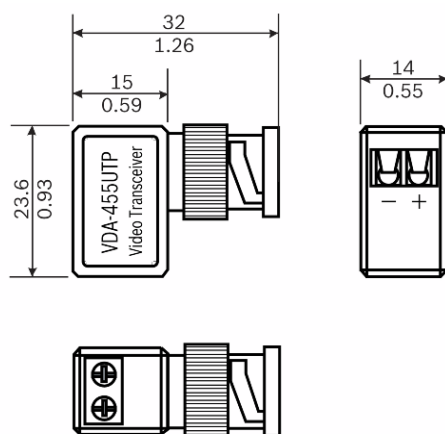
Flush mount

S Surface mount

FlexiDome^{XF} model overview

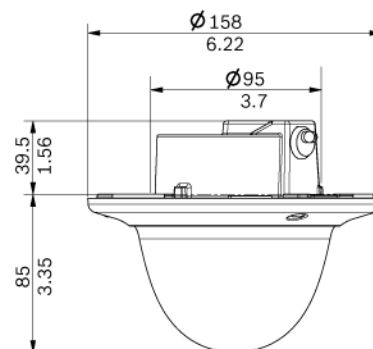
Model	Standard	Lens
VDC-485V03-10	PAL	3 to 9.5 mm F1.0
VDC-485V03-20	NTSC	3 to 9.5 mm F1.0
VDC-485V04-10	PAL	3.7 to 12 mm F1.6
VDC-485V04-20	NTSC	3.7 to 12 mm F1.6
VDC-485V09-10	PAL	9 to 22 mm F1.4
VDC-485V09-20	NTSC	9 to 22 mm F1.4

BNC to UTP Transceiver



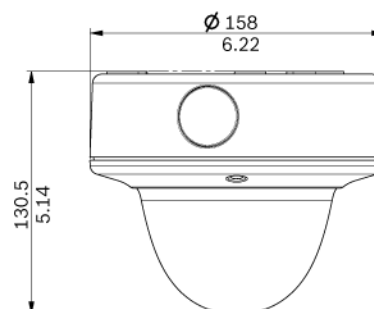
Dimensions in mm (in.)

Flush Mounting

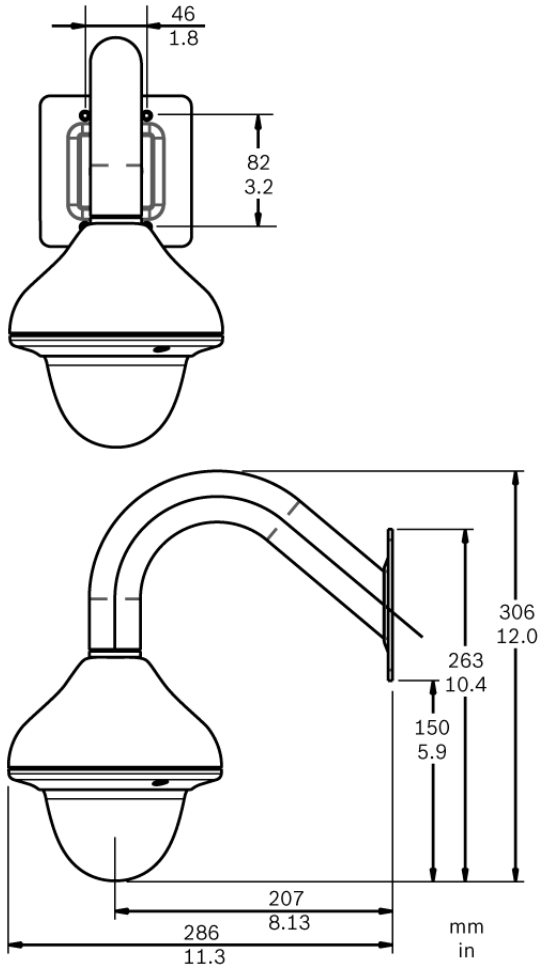


Dimensions in mm (in.)

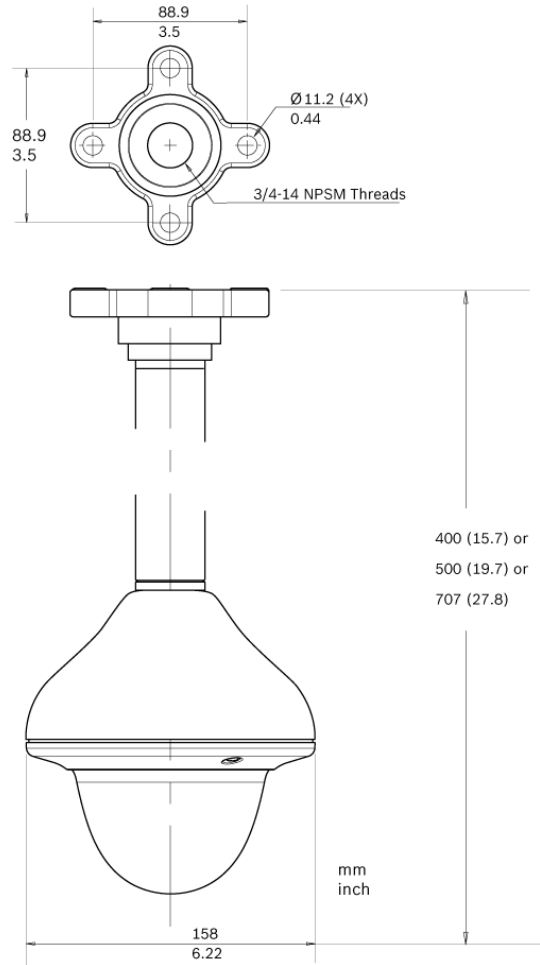
VDA-455SMB-Surface Mount Box



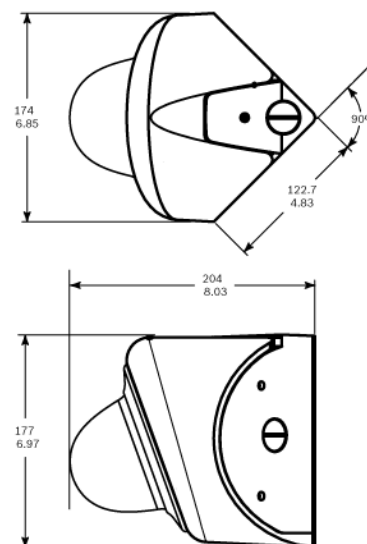
Dimensions in mm (in.) for surface mounting

VDA-445WMT-Pendant Wall Mount

Dimensions in mm (in.)

VDA-455PMT-Pendant Pipe Mount

Dimensions in mm (in.)

VDA-455CMT-Corner Mount

Dimensions in mm (in.) for corner mounting

Technical Specifications**Electrical**

Power supply

Rated voltage 12 VDC or 24 VAC, 50/60 Hz

Voltage range 10.8 to 39 VDC or 12 to 28 VAC, 45 to 65 Hz

Power consumption 4 W (6 W with heater operating)

Imager Interline transfer CCD, 1/3-inch image format

Active picture elements

PAL models 752 H x 582 V

NTSC models 768 H x 494 V

Sensitivity (3200 K)

Model	Usable picture (30 IRE)	Usable picture (50 IRE)	Full video (100 IRE)
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Color

VDC-485V03	Color	0.16 lx (0.015 fc)	0.35 lx (0.033 fc)	1.4 lx (0.13 fc)
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	Color + 10 x SensUp	0.016 lx (0.0015 fc)	0.035 lx (0.0033)	0.14 lx (0.013 fc)
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	NightSense	0.056 lx (0.0052 fc)	0.13 lx (0.012)	0.5 lx (0.046)
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	NightSense+ 10 x SensUp	0.0056 lx (0.00052 fc)	0.013 lx (0.0012)	0.05 lx (0.0046)
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VDC-485V04	Color	0.4 lx (0.037 fc)	0.9 (0.083)	3.6 (0.33)
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	Color + 10 x SensUp	0.04 lx (0.0037 fc)	0.09 (0.0083)	0.36 (0.033)
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	NightSense	0.14 lx (0.013 fc)	0.32 (0.03)	1.3 (0.12)
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	NightSense+ 10x SensUp	0.014 lx (0.0013 fc)	0.032 (0.003)	0.13 (0.012)
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VDC-485V09	Color	0.28 lx (0.027 fc)	0.62 lx (0.058 fc)	2.48 lx (0.23 fc)
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	Color + 10 x SensUp	0.028 lx (0.0027 fc)	0.062 lx (0.0058)	0.248 lx (0.023 fc)
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	NightSense	0.099 lx (0.0092 fc)	0.23 lx (0.021)	0.88 lx (0.081)
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	NightSense+ 10 x SensUp	0.0099 lx (0.00092)	0.023 lx (0.0021)	0.088 lx (0.0081)
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SensUp	Automatic continuous up to 10 x, off selectable
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Horizontal resolution	540 TVL
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Signal-to-noise ratio	>50 dB
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AGC	Auto, maximum level selectable 28 dB
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Auto black	On/off selectable
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Electronic shutter	Flickerless, on/off, default shutter
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NightSense (XF only)	Auto, forced, off selectable
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Day/Night (DN only)	Auto, monochrome, color selectable
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Dynamic range	32 x dynamic range enhancement
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Dynamic noise reduction	Automatic, off, selectable
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Sharpness correction	Horizontal and vertical, symmetrical
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Backlight compensation	Off, programmable window and level selectable
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White balance	Automatic sensing (2500 to 9000 K), AWB hold and manual
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Video motion detector	Four (4) areas, sensitivity selectable
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Camera ID	16-character editable string, position selectable
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Video output	Composite video 1.0 Vpp, 75 ohm
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Remote control	Bi-directional coaxial communication
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Synchronization	Internal or LineLock*
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Connector	Flying leads (through the back)
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* *LineLock (only when AC-powered) synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (from 0° to 358°) to allow vertical synchronization in multi-phase power installations.*

Optical

Varifocal	Manual zoom and focus adjustment
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Iris control	Automatic iris control
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Viewing angle

3 to 9.5 mm	Wide 95° x 69° (H x V)
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	Tele 30.2° x 22.6° (H x V)
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3.7 to 12 mm	Wide 76.1° x 55.8° (H x V)
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	Tele 23.8° x 17.9° (H x V)
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9 to 22 mm	Wide: 31.2° x 22.8° (H x V)
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	Tele: 12.8° x 9.6° (H x V)
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Mechanical

Dimensions	See drawings
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Weight	740 g (1.63 lb)
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Mounting	Flush on hollow surface with three (3) screws in a 4S electrical box
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Color	White (RAL9010) trim ring with black inner liner
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Adjustment range	360° pan, 90° tilt, ±90° azimuth
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Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
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Trim ring	Aluminum
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Environmental

Operating temperature	-50 °C to +50 °C (-58 °F to +122 °F) (with heater 'ON')
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Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
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Humidity	5% to 93% relative humidity
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Impact protection	IEC 60068-2-75 test Eh, 50 J
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	EN 50102, exceeding IK 10
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Ordering Information	
VDC-485V03-10 Vandal Resistant Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/3-9.5 mm F1.0 Varifocal lens, white	VDC-485V03-10
VDC-485V03-10S Vandal Resistant Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/3-9.5 mm F1.0 Varifocal lens, white, surface mount	VDC-485V03-10S
VDC-485V03-20 Vandal Resistant Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/3-9.5 mm F1.0 Varifocal lens, white	VDC-485V03-20
VDC-485V03-20S Vandal Resistant Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/3-9.5 mm F1.0 Varifocal lens, white, surface mount	VDC-485V03-20S
VDC-485V04-10 Vandal Resistant Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/3.7-12 mm F1.4 Varifocal lens, white	VDC-485V04-10
VDC-485V04-10S Vandal Resistant Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/3.7-12 mm F1.4 Varifocal lens, white, surface mount	VDC-485V04-10S
VDC-485V04-20 Vandal Resistant Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/3.7-12 mm F1.4 Varifocal lens, white	VDC-485V04-20
VDC-485V04-20S Vandal Resistant Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/3.7-12 mm F1.4 Varifocal lens, white, surface mount	VDC-485V04-20S
VDC-485V09-10 Vandal Resistant Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white	VDC-485V09-10
VDC-485V09-20 Vandal Resistant Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white	VDC-485V09-20
VDC-485V09-10S Vandal Resistant Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount.	VDC-485V09-10S
VDC-485V09-20S Vandal Resistant Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount.	VDC-485V09-20S

Ordering Information	
VDN-495V03-10SF Vandal Resistant Day/ Night Model, Surface Mount, French 1/3-inch, PAL D/N, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/3-9 mm F1.4 Varifocal lens, white, surface mount, French	VDN-495V03-10SF
Accessories	
VDA-455SMB Surface mount box, high impact for VDM-345, VDC-445, VDM-355, VDC-455, VDC-485 and VDN-495 (not for FlexiDome VF).	VDA-455SMB
VDA-445WMT Wall mounting bracket	VDA-445WMT
VDA-455CMT Corner mounting bracket for interior corner	VDA-455CMT
VDA-455PMT Pendant pipe mount	VDA-455PMT
S1460 Service/Monitor Cable for FlexiDome analog and IP (2.5 mm connector to BNC), 1 m	S1460
UPA-1509-60 Power Supply 120 VAC, 60 Hz, 15 VDC, 9 VA Out	UPA-1509-60
UPA-1509-50 Power Supply 220 VAC, 50 Hz, 15 VDC, 9 VA Out	UPA-1509-50
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
Software Options	
VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT

VDC-480 Series Dome Cameras FlexiDome XF Indoor



Features

- ▶ Indoor polycarbonate dome
- ▶ XF-Dynamic for wide dynamic range
- ▶ NightSense
- ▶ 15-bit DSP technology
- ▶ 540 TVL color resolution
- ▶ SensUp 10 x extended sensitivity
- ▶ Bilinx bi-directional communication
- ▶ Patented dome shape for 90° vertical view

The FlexiDome^{XF} Indoor series are the ultimate solutions for virtually any indoor surveillance application. These units contain full-featured color cameras, with a 1/3-inch CCD and integral varifocal lenses.

Installation is quick and easy, since the cameras come completely assembled and ready to use. Using the proprietary pan/tilt/rotation mechanism, installers can select the exact field of view. Mounting options are numerous, including surface, 4S (USA), wall, corner, and suspended ceiling.

The VDC-480 series dome cameras are an ideal solution for many surveillance applications, especially where backlighting may be a concern. Their compact, sleek design and virtually flush-mount appearance will complement any decor.

Functions

Technology

The VDC-480 series incorporates the latest technology adopted from the high-performance Dinion^{XF} Color cameras. This technology ensures the highest possible image quality at all times and under all conditions. Based on a unique combination of 15-bit digital video processing and XF-dynamic, these cameras provide excellent sensitivity, with up to 32 x extended dynamic range. This delivers a sharper, more detailed image with outstanding accuracy in color reproduction.

Operation

All cameras feature video motion detection, auto black, default shutter, and back light compensation for optimum performance in all lighting conditions. The lens wizard and focus aid make lens adjustment easy and straightforward, and ensure proper focus throughout the 24-hour cycle. All cameras incorporate Bilinx, a technology that allows technicians to set up, control the camera settings, and even update firmware remotely over the video cable.

Controls and Indicators

- OSD
- 5-key operation

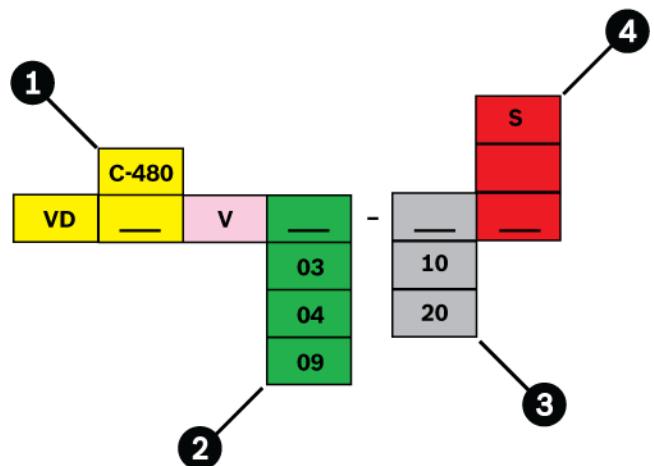
Interconnections

- Video connection BNC on flying lead
- Power connection on flying leads

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity
Safety	UL 1950; CSA 22.2 No. 950; EN 60950 (CE)	
Immunity	EN 50130-4 (CE)	
Emission	EN 50022 class B (CE); FCC, class B part 15	

Installation/Configuration Notes

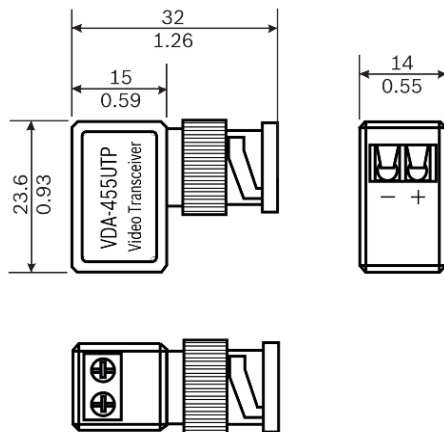


1	C-480	Color (with NightSense)
2	03	3 to 9.5 mm F1.0
	04	3.7 to 12 mm F1.6
	09	9 to 22 mm F1.4
3	10	PAL color or CCIR mono
	20	NTSC color or EIA mono
4		Flush mount
	S	Surface mount

Model overview

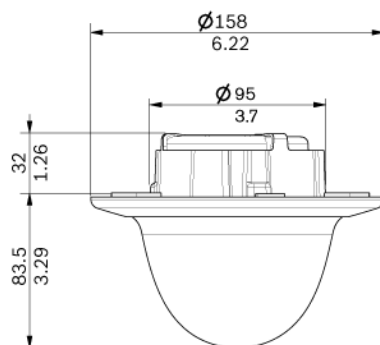
Model	Standard	Lens
VDC-480V03-10	PAL	3 to 9.5 mm F1.0
VDC-480V03-20	NTSC	3 to 9.5 mm F1.0
VDC-480V04-10	PAL	3.7 to 12 mm F1.6
VDC-480V04-20	NTSC	3.7 to 12 mm F1.6
VDC-480V09-10	PAL	9 to 22 mm F1.4
VDC-480V09-20	NTSC	9 to 22 mm F1.4

BNC to UTP Transceiver



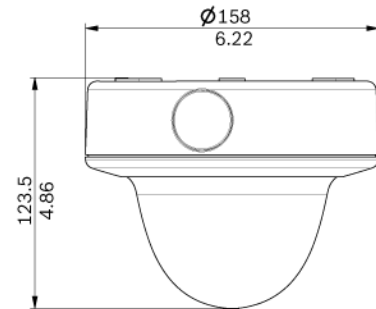
mm (in)

Indoor Flush Mounting



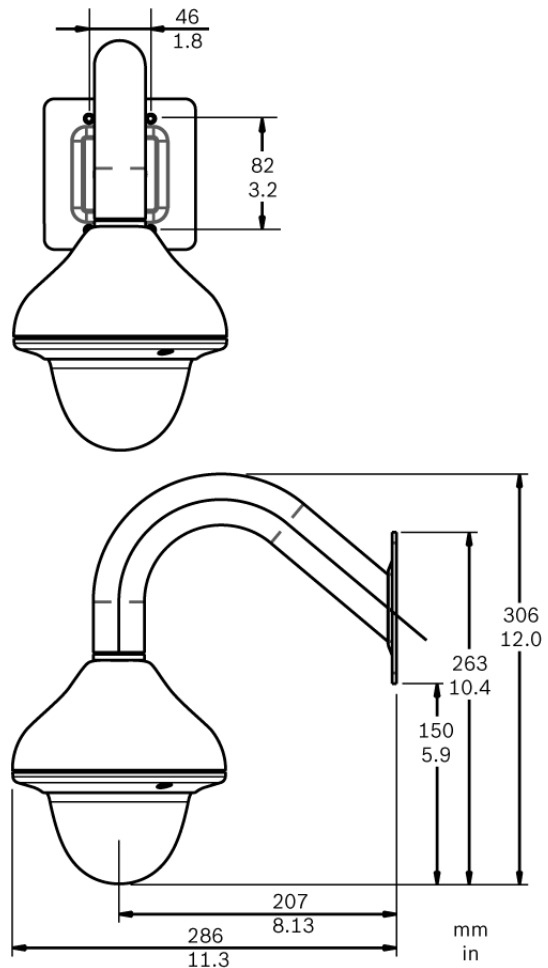
mm (in)

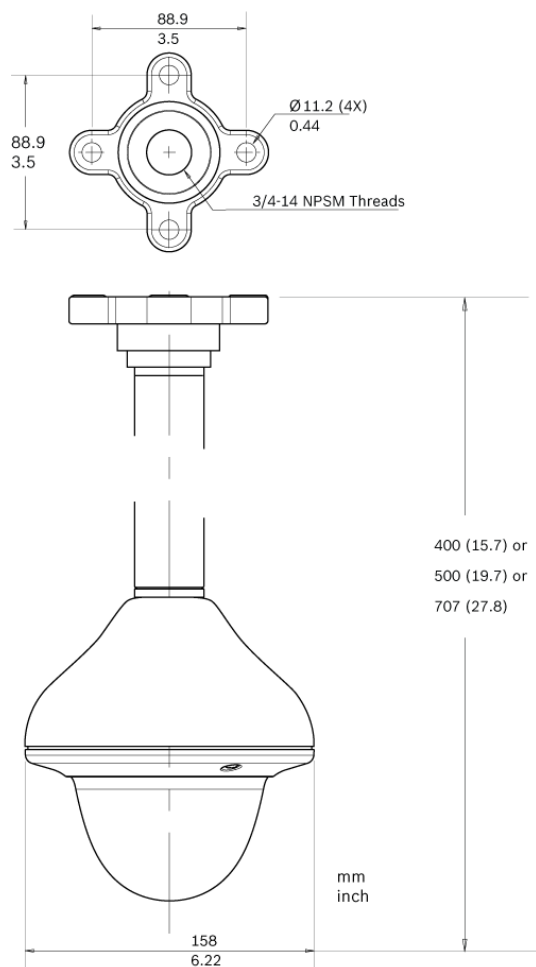
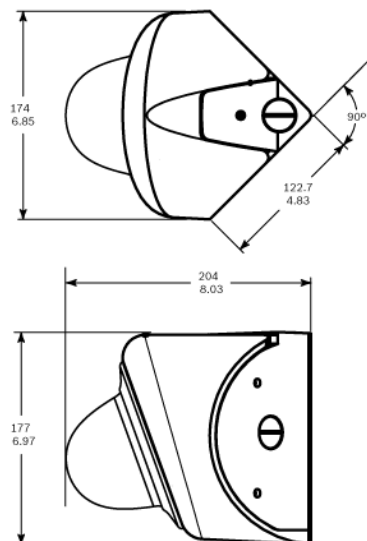
VDA-445SMB-Surface Mount Box



mm (in)

VDA-445WMT-Pendant Wall Mount



VDA-455PMT—Pendant Pipe Mount**VDA-455CMT—Corner Mount**

mm (in.)

Technical Specifications**Electrical**

Power supply	
Rated voltage	12 VDC or 24 VAC, 50/60 Hz
Voltage range	10.8 to 39 VDC or 12 to 28 VAC, 45 to 65 Hz
Power consumption	4 W
Imager	Interline transfer CCD, 1/3-inch image format
Active picture elements	
PAL models	752 H x 582 V
NTSC models	768 H x 494 V

Sensitivity (3200 K)

Model		Usable picture (30 IRE)	Usable picture (50 IRE)	Full video (100 IRE)
VDC-480V03	Color	0.16 lx (0.015 fc)	0.35 lx (0.033 fc)	1.4 lx (0.13 fc)
	Color + 10 x SensUp	0.016 lx (0.0015 fc)	0.035 lx (0.0033)	0.14 lx (0.013 fc)
	NightSense	0.056 lx (0.0052 fc)	0.13 lx (0.012)	0.5 lx (0.046)
	NightSense+ 10 x SensUp	0.0056 lx (0.00052 fc)	0.013 lx (0.0012)	0.05 lx (0.0046)
VDC-480V04	Color	0.4 lx (0.037 fc)	0.9 (0.083)	3.6 (0.33)
	Color + 10 x SensUp	0.04 lx (0.0037 fc)	0.09 (0.0083)	0.36 (0.033)
	NightSense	0.14 lx (0.013 fc)	0.32 (0.03)	1.3 (0.12)
	NightSense+ 10x SensUp	0.014 lx (0.0013 fc)	0.032 (0.003)	0.13 (0.012)
VDC-480V09	Color	0.28 lx (0.027 fc)	0.62 lx (0.058 fc)	2.48 lx (0.23 fc)
	Color + 10 x SensUp	0.028 lx (0.0027 fc)	0.062 lx (0.0058)	0.248 lx (0.023 fc)
	NightSense	0.099 lx (0.0092 fc)	0.23 lx (0.021)	0.88 lx (0.081)
	NightSense+ 10 x SensUp	0.0099 lx (0.00092)	0.023 lx (0.0021)	0.088 lx (0.0081)

SensUp	Automatic continuous up to 10 x, off selectable
Horizontal resolution	540 TVL
Signal-to-noise ratio	>50 dB
AGC	Auto, maximum level selectable 28 dB
Auto black	On/off selectable
Electronic shutter	Flickerless, on/off, default shutter
NightSense	Auto, forced, off selectable
Dynamic range	32 x dynamic range enhancement
Dynamic noise reduction	Automatic, off, selectable
Sharpness correction	Horizontal and vertical, symmetrical
Backlight compensation	Off, programmable window and level selectable

White balance	Automatic sensing (2500 to 9000 K), AWB hold and manual
Video motion detector	Four (4) areas, sensitivity selectable
Camera ID	16-character editable string, position selectable
Video output	Composite video 1.0 Vpp, 75 ohm
Remote control	Bi-directional coaxial communication
Synchronization	Internal or LineLock*
Connector	Flying leads (through the back)

* *LineLock (only when AC-powered) synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (from 0° to 358°) to allow vertical synchronization in multi-phase power installations.*

Optical

Varifocal	Manual zoom and focus adjustment
Iris control	Automatic iris control
Viewing angle	
3 to 9.5 mm	Wide 95° x 69° (H x V) Tele 30.2° x 22.6° (H x V)
3.7 to 12 mm	Wide 76.1° x 55.8° (H x V) Tele 23.8° x 17.9° (H x V)
9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)

Mechanical

Dimensions	See drawings
Weight	740 g (1.63 lb)
Mounting	Flush on hollow surface with three (3) screws in a 4S electrical box
Color	White (RAL9010) trim ring with black inner liner
Adjustment range	360° pan, 90° tilt, ±90° azimuth
Dome bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim ring	Polycarbonate

Environmental

Operating temperature	-10 °C to +45 °C (-14 °F to +113 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Humidity	5% to 93% relative humidity

Ordering Information

VDC-480V03-10 Indoor Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3-9.5 mm F1.0 Varifocal lens, white	VDC-480V03-10
VDC-480V03-10S Indoor Color Model, Surface mount 1/3-inch, PAL color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3-9.5 mm F1.0 Varifocal lens, white, surface mount	VDC-480V03-10S
VDC-480V03-20 Indoor Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/ 24 VAC, 60 Hz, w/3-9.5 mm F1.0 Varifocal lens, white	VDC-480V03-20
VDC-480V03-20S Indoor Color Model, Surface mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/ 24 VAC, 60 Hz, w/3-9.5 mm F1.0 Varifocal lens, white, surface mount	VDC-480V03-20S
VDC-480V04-10 Indoor Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3.7-12 mm F1.0 Varifocal lens, white	VDC-480V04-10
VDC-480V04-10S Indoor Color Model, Surface mount 1/3-inch, PAL color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3.7-12 mm F1.0 Varifocal lens, white, surface mount	VDC-480V04-10S
VDC-480V04-20 Indoor Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3.7-12 mm F1.0 Varifocal lens, white	VDC-480V04-20
VDC-480V04-20S Indoor Color Model, Surface mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3.7-12 mm F1.0 Varifocal lens, white, surface mount	VDC-480V04-20S
VDC-480V09-10 Indoor Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/9-22 mm F1.0 Varifocal lens, white	VDC-480V09-10
VDC-480V09-10S Indoor Color Model, Surface mount 1/3-inch, PAL color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/9-22 mm F1.0 Varifocal lens, white, surface mount	VDC-480V09-10S
VDC-480V09-20 Indoor Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/9-22 mm F1.0 Varifocal lens, white	VDC-480V09-20
VDC-480V09-20S Indoor Color Model, Surface mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/ 24 VAC, 50 Hz, w/9-22 mm F1.0 Varifocal lens, white, surface mount	VDC-480V09-20S

Ordering Information**Accessories**

VDA-445SMB Surface mount box, indoor for VDM-345 and VDC-445	VDA-445SMB
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VDA-445WMT Wall mounting bracket	VDA-445WMT
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VDA-455PMT Pendant pipe mount	VDA-455PMT
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VDA-455CMT Corner mounting bracket for interior corner	VDA-455CMT
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VDA-455TBL Tinted bubble Tinted bubble for FlexiDome series	VDA-455TBL
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VDA-455CBL Clear bubble Clear Bubble for FlexiDome series	VDA-455CBL
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S1460 Service/Monitor Cable for FlexiDome analog and IP (2.5 mm connector to BNC), 1 m	S1460
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UPA-1509-60 Power Supply 120 VAC, 60 Hz, 15 VDC, 9 VA Out	UPA-1509-60
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UPA-1509-50 Power Supply 220 VAC, 50 Hz, 15 VDC, 9 VA Out	UPA-1509-50
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UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
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UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
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Software Options

VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT
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VDM-3x5 and VDC-4x5 Series Dome Cameras FlexiDome VF and XT+



Features

- ▶ **Low-impact and impact-resistant models**
- ▶ **1/3-inch format CCD imager**
- ▶ **Superior picture clarity in virtually all situations**
- ▶ **540 TVL color resolution**
- ▶ **AC or DC operation**
- ▶ **Patented dome shape for 90° vertical view**
- ▶ **Extended sensitivity with NightSense**
- ▶ **Bilinx bi-directional communication**

The FlexiDome^{VF} and FlexiDome^{XT+} series of dome cameras are an excellent solution for virtually any indoor or outdoor application. The cast aluminum housing, polycarbonate dome and hardened inner liner of the FlexiDome^{XT+} version can withstand the equivalent of 120 lbs of force. The FlexiDome^{VF} utilizes a standard indoor enclosure. These units contain full-featured color and monochrome cameras, with 1/3-inch CCD and integral varifocal lenses.

Installation is quick and easy, since the cameras come completely assembled and ready to use. Using the proprietary pan/tilt/rotation mechanism, installers can select exactly the required field of view. Mounting options are numerous, including surface, 4S, wall, corner and suspended ceiling.

The FlexiDome^{VF} and FlexiDome^{XT+} cameras are an ideal solution for many surveillance applications. Their compact, sleek design and virtually flush-mount appearance complement any decor. The camera enclosure provides the extra protection necessary for applications such as in schools, banks, prisons, parking garages, retail and commercial buildings.

Functions

Technology

The FlexiDome^{VF} and FlexiDome^{XT+} series incorporate the latest technology in imaging, with 540 TVL resolution color cameras. Their superior sensitivity, high resolution and picture quality provide optimal performance in virtually all situations. The choice of lenses makes these cameras very versatile, because they can cover everything from standard and telephoto to low-light applications.

Operation

The lens wizard and focus aid make lens adjustment easy and straightforward, and ensure proper focus throughout the 24-hour cycle. All cameras can operate on both AC and DC. LineLock and phase adjustment are available, when AC power is used. NightSense, available in FlexiDome color versions, is a feature that can extend its excellent sensitivity by a factor of three in monochrome operation. All cameras incorporate Bilinx, a technology that allows technicians to set up and control the camera settings remotely over the video cable.

Controls and Indicators

- OSD
- 5-key operation

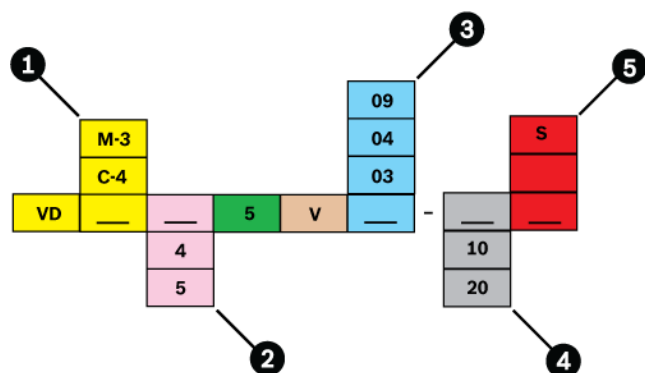
Interconnections

- Video connection BNC on flying lead
- Power connection on flying leads

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity VDx 355-455-485-495
USA	FCC	Declaration of Conformity VDx 355-455-485-495
Safety	UL 1950; CSA 22.2 No. 950; EN 60950 (CE)	
Immunity	EN 50130-4 (CE)	
Emission	EN 50022 class B (CE); FCC, class B part 15	
Water/dust protection	IP 66 and NEMA-4X (VDM-355 and VDC-455 models only)	

Installation/Configuration Notes



1	M-3	Monochrome
	C-4	Color (with NightSense)
2	4	Low impact
	5	High impact
3	03	2.6 to 6 mm F1.4
	04	4 to 9 mm F1.6 (low impact version) 3.7 to 12 mm F1.6 (high impact version)
	09	9 to 22 mm F1.4
4	10	PAL color or CCIR mono
	20	NTSC color or EIA mono
5		Flush mount
	S	Surface mount

FlexiDome^{VF} model overview

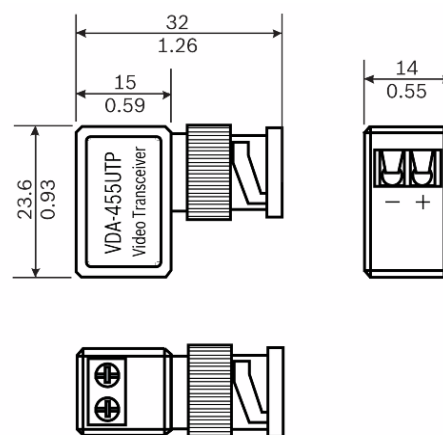
Model	Standard	Lens
Monochrome		
VDM-345V03-10	CCIR	2.6 to 6 mm F1.4
VDM-345V03-20	EIA	2.6 to 6 mm F1.4
VDM-345V04-10	CCIR	4 to 9 mm F1.6
VDM-345V04-20	EIA	4 to 9 mm F1.6
Color		
VDC-445V03-10	PAL	2.6 to 6 mm F1.4
VDC-445V03-20	NTSC	2.6 to 6 mm F1.4
VDC-445V04-10	PAL	4 to 9 mm F1.6
VDC-445V04-20	NTSC	4 to 9 mm F1.6
VDC-445V09-10	PAL	9 to 22 mm F1.4
VDC-445V09-20	NTSC	9 to 22 mm F1.4

FlexiDome^{XT+} model overview

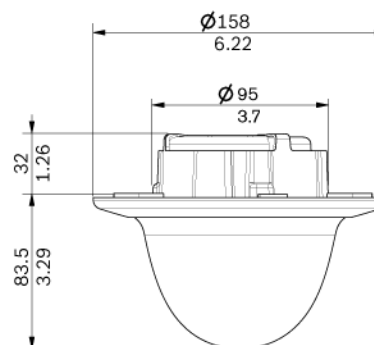
Model	Standard	Lens
Monochrome		
VDM-355V03-10	CCIR	2.6 to 6 mm F1.4
VDM-355V03-20	EIA	2.6 to 6 mm F1.4
VDM-355V04-10	CCIR	3.7 to 12 mm F1.6
VDM-355V04-20	EIA	3.7 to 12 mm F1.6
Color		
VDC-455V03-10	PAL	2.6 to 6 mm F1.4
VDC-455V03-20	NTSC	2.6 to 6 mm F1.4
VDC-455V04-10	PAL	3.7 to 12 mm F1.6

VDC-455V04-20	NTSC	3.7 to 12 mm F1.6
VDC-455V09-10	PAL	9 to 22 mm F1.4
VDC-455V09-20	NTSC	9 to 22 mm F1.4

BNC to UTP Transceiver

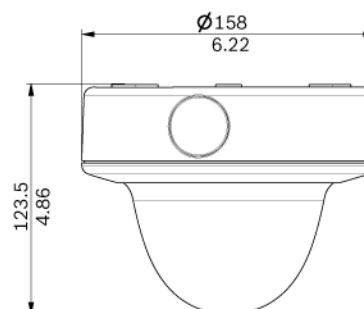


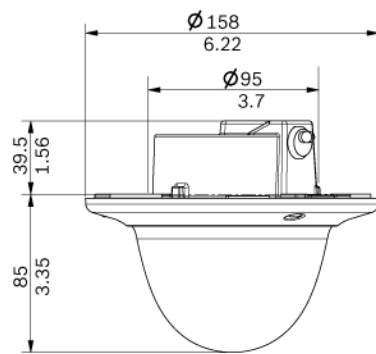
Dimensions in mm (in.)

FlexiDome^{VF} Low Impact, Indoor Flush Mounting Model

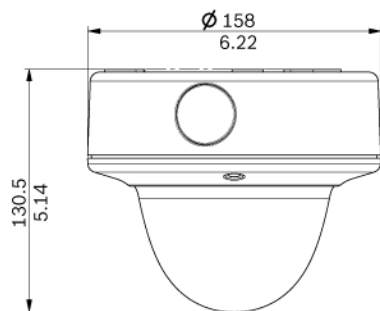
Dimensions in mm (in.)

VDA-445SMB-Surface Mount Box

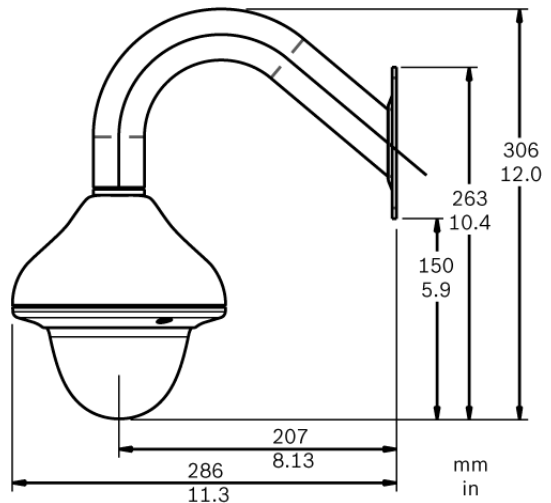
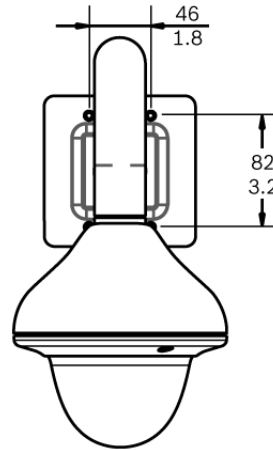
Dimensions in mm (in.) for the FlexiDome^{VF} low-impact, indoor surface mounting model

FlexiDome^{XT+} Impact-resistant, Indoor Flush Mounting Model

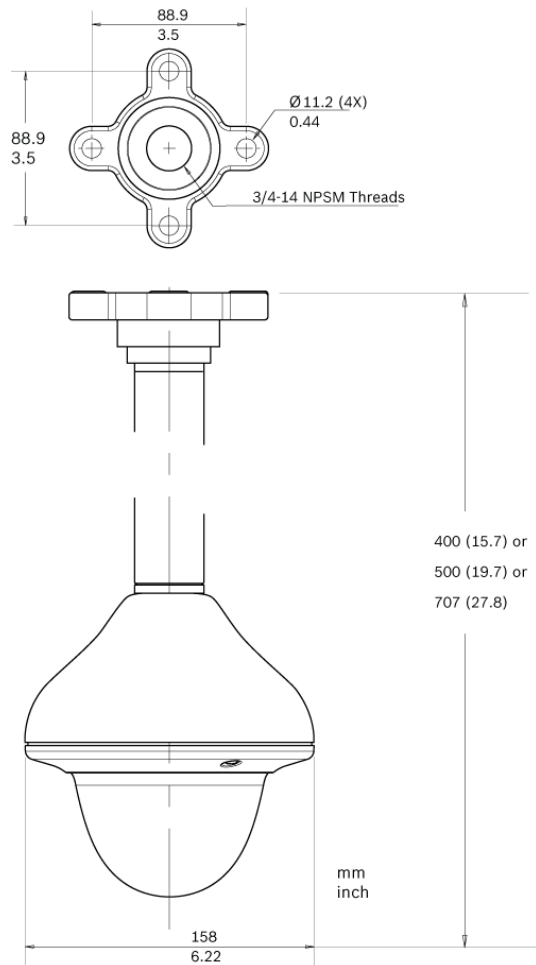
Dimensions in mm (in.)

VDA-455SMB—Hardened Surface Mount Box

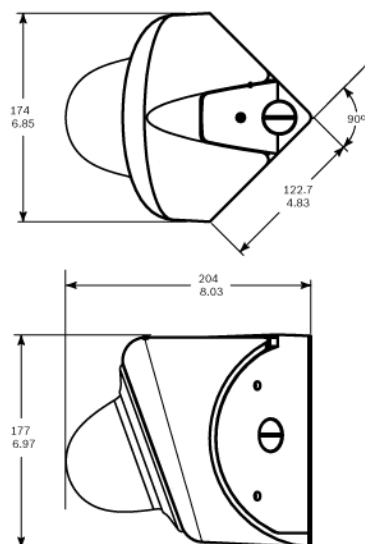
Dimensions in mm (in.) for the FlexiDome^{XT+} impact-resistant, surface mounting model

VDA-445WMT—Pendant Wall Mount

Dimensions in mm (in.) for wall mounting

VDA-455PMT—Pendant Pipe Mount

Dimensions in mm (in.) for pipe mounting

VDA-455CMT—Corner Mount

Dimensions in mm (in.) for corner mounting

Technical Specifications**Electrical**

Power Supply	
Rated Voltage	12 VDC or 24 VAC, 50/60 Hz
Voltage Range	10.8 to 39 VDC or 12 to 28 VAC, 45 to 65 Hz

Power Consumption	
VDM-345 and VDC-445	4 W
VDM-355 and VDC-455	4 W (6 W with heater operation)
Imager	Interline transfer CCD, 1/3-inch image format
Active Picture Elements	
PAL Models	752 H x 582 V
NTSC Models	768 H x 494 V

Sensitivity (3200 K)

Model	Usable Picture (30 IRE)	Usable Picture (50 IRE)	Full Video (100 IRE)
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Monochrome			
VDM-345V03	0.09 lx (0.008 fc)	0.2 lx (0.019 fc)	0.78 lx (0.074 fc)
VDM-355V03			
VDM-345V04	0.12 lx (0.011 fc)	0.26 lx (0.024 fc)	1.0 lx (0.095 fc)
VDM-355V04			

Color				
VDC-445V03	Color	0.44 lx	0.98 lx	3.9 lx
VDC-455V03		(0.041 fc)	(0.091)	(0.36)
	NightSense	0.18 lx	0.39 lx	1.6 lx
		(0.016 fc)	(0.036 fc)	(0.15 fc)
VDC-445V04	Color	0.58 lx	1.3 lx	5.1 lx
VDC-455V04		(0.053 fc)	(0.12 fc)	(0.48 fc)
	NightSense	0.23 lx	0.5 lx	2.0 lx
		(0.021 fc)	(0.048 fc)	(0.19 fc)
VDC-445V09	Color	0.44 lx	0.98 lx	3.9 lx
VDC-455V09		(0.041 fc)	(0.091)	(0.36)
	NightSense	0.18 lx	0.39 lx	1.6 lx
		(0.016 fc)	(0.036 fc)	(0.15 fc)

Horizontal Resolution	
Color Models	540 TVL
Monochrome Models	570 TVL
Signal-to-noise Ratio	>50 dB
AGC	20 dB (max)
Auto Black	On/off selectable
Electronic Shutter	Flickerless, on/off
NightSense	Auto, forced, off selectable
Sharpness Correction	Horizontal and vertical, symmetrical
Backlight Compensation	Center window weighting, off selectable
White Balance	Automatic sensing (2500 to 9000 K) and hold
Video Output	Composite video 1.0 Vpp, 75 Ohm
Synchronization	Internal or LineLock*
Connector	Flying leads (through the back)

* Line-lock (only when AC-powered) synchronizes the camera to the power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be adjusted (from 0° to 358°) to allow vertical synchronization in multi-phase power installations.

Optical

Varifocal	Manual zoom and focus adjustment
Iris Control	Automatic iris control
Viewing Angle	
2.6 to 6 mm	Wide: 98.5° x 75.3° (H x V) Tele: 48.1° x 36.2° (H x V)
4 to 9 mm	Wide: 68° x 50.2° (H x V) Tele: 32.1° x 24.1° (H x V)
3.7 to 12 mm	Wide: 76.1° x 55.8° (H x V) Tele: 23.8° x 17.9° (H x V)
9 to 22 mm	Wide: 31.2° x 22.8° (H x V) Tele: 12.8° x 9.6° (H x V)

Mechanical

Dimensions	See drawings
Weight	
VDM-345 and VDC-445	440 g (1.1 lb)
VDM-355 and VDC-455	740 g (1.63 lb)
Mounting	Flush on hollow surface with three (3) screws in a 4S electrical box
Color	White (RAL9010) trim ring with black inner liner
Adjustment Range	360° pan, 90° tilt, ±90° azimuth
Dome Bubble	Polycarbonate, clear with UV blocking anti-scratch coating
Trim Ring	Vandal resistant models: aluminum Low impact models: polycarbonate

Environmental

Operating temperature	
VDM-345 and VDC-445	-10 °C to +45 °C (+14 °F to +113 °F)
VDM-355 and VDC-455	-50 °C to +50 °C (-58 °F to +122 °F) (with heater 'ON')
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Humidity	5% to 93% relative humidity
Impact protection	IEC 60068-2-75 test Eh, 50 J; EN 50102, exceeding IK 10 (VDM-355 and VDC-455 models only)

Ordering Information

VDM-345V03-10 Indoor Monochrome Model 1/3 inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white.	VDM-345V03-10
VDM-345V03-10S Indoor Monochrome Model, Surface Mount 1/3 inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDM-345V03-10S
VDM-345V03-20 Indoor Monochrome Model 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white.	VDM-345V03-20
VDM-345V03-20S Indoor Monochrome Model, Surface Mount 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDM-345V03-20S
VDM-345V04-10 Indoor Monochrome Model 1/3-inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/4-9 mm F1.6 Varifocal lens, white.	VDM-345V04-10
VDM-345V04-10S Indoor Monochrome Model, Surface Mount 1/3-inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/4-9 mm F1.6 Varifocal lens, white, surface mount	VDM-345V04-10S
VDM-345V04-20 Indoor Monochrome Model 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/4-9 mm F1.6 Varifocal lens, white.	VDM-345V04-20
VDM-345V04-20S Indoor Monochrome Model, Surface Mount 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/4-9 mm F1.6 Varifocal lens, white, surface mount	VDM-345V04-20S
VDC-445V03-10 Indoor Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white.	VDC-445V03-10
VDC-445V03-10S Indoor Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDC-445V03-10S
VDC-445V03-20 Indoor Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white	VDC-445V03-20
VDC-445V03-20S Indoor Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDC-445V03-20S

Ordering Information

VDC-445V04-10 Indoor Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/4-9 mm F1.6 Varifocal lens, white	VDC-445V04-10
VDC-445V04-10S Indoor Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/4-9 mm F1.6 Varifocal lens, white, surface mount	VDC-445V04-10S
VDC-445V04-20 Indoor Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/4-9 mm F1.6 Varifocal lens, white	VDC-445V04-20
VDC-445V04-20S Indoor Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/4-9 mm F1.6 Varifocal lens, white, surface mount	VDC-445V04-20S
VDM-355V03-10 Vandal Resistant Monochrome Model 1/3-inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white	VDM-355V03-10
VDM-355V03-10S Vandal Resistant Monochrome Model, Surface Mount 1/3-inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDM-355V03-10S
VDM-355V03-20 Vandal Resistant Monochrome Model 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white	VDM-355V03-20
VDM-355V03-20S Vandal Resistant Monochrome Model, Surface Mount 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDM-355V03-20S
VDM-355V04-10 Vandal Resistant Monochrome Model 1/3-inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/3.7-12 mm F1.6 Varifocal lens, white	VDM-355V04-10
VDM-355V04-10S Vandal Resistant Monochrome Model, Surface Mount 1/3-inch, B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/3.7-12 mm F1.6 Varifocal lens, white, surface mount	VDM-355V04-10S
VDM-355V04-20 Vandal Resistant Monochrome Model 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/3.7-12 mm F1.6 Varifocal lens, white	VDM-355V04-20
VDM-355V04-20S Vandal Resistant Monochrome Model, Surface Mount 1/3-inch, B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/3.7-12 mm F1.6 Varifocal lens, white, surface mount	VDM-355V04-20S

Ordering Information

VDC-455V03-10 Vandal Resistant Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white	VDC-455V03-10
VDC-455V03-10S Vandal Resistant Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDC-455V03-10S
VDC-455V03-20 Vandal Resistant Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white	VDC-455V03-20
VDC-455V03-20S Vandal Resistant Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/2.6-6 mm F1.4 Varifocal lens, white, surface mount	VDC-455V03-20S
VDC-455V04-10 Vandal Resistant Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/3.7-12 mm F1.6 Varifocal lens, white	VDC-455V04-10
VDC-455V04-10S Vandal Resistant Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12V DC/24 VAC, 50 Hz, w/3.7-12 mm F1.6 Varifocal lens, white, surface mount	VDC-455V04-10S
VDC-455V04-20 Vandal Resistant Color Model 1/3-inch, NTSC color, 540 TVL, 12V DC/24 VAC, 60 Hz, w/3.7-12 mm F1.6 Varifocal lens, white	VDC-455V04-20
VDC-455V04-20S Vandal Resistant Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12V DC/24 VAC, 60 Hz, w/3.7-12 mm F1.6 Varifocal lens, white, surface mount	VDC-455V04-20S
VDC-445V09-10 Indoor Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white.	VDC-445V09-10
VDC-445V09-20 Indoor Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white.	VDC-445V09-20
VDC-445V09-10S Indoor Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount.	VDC-445V09-10S
VDC-445V09-20S Indoor Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount.	VDC-445V09-20S

Ordering Information	
VDC-455V09-10 Vandal Resistant Color Model 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white.	VDC-455V09-10
VDC-455V09-20 Vandal Resistant Color Model 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white.	VDC-455V09-20
VDC-455V09-10S Vandal Resistant Color Model, Surface Mount 1/3-inch, PAL color, 540 TVL, 12 VDC/24 VAC, 50 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount.	VDC-455V09-10S
VDC-455V09-20S Vandal Resistant Color Model, Surface Mount 1/3-inch, NTSC color, 540 TVL, 12 VDC/24 VAC, 60 Hz, w/9-22 mm F1.4 Varifocal lens, white, surface mount.	VDC-455V09-20S
Accessories	
VDA-445DMY-S Flexidome surface mounted indoor dummy camera	VDA-445DMY-S
VDA-445SMB Surface mount box, indoor for VDM-345 and VDC-445	VDA-445SMB
VDA-455SMB Surface mount box, high impact for VDM-345, VDC-445, VDM-355, VDC-455, VDC-485 and VDN-495 (not for FlexiDome VF).	VDA-455SMB
VDA-445WMT Wall mounting bracket	VDA-445WMT
VDA-455PMT Pendant pipe mount	VDA-455PMT
VDA-455CMT Corner mounting bracket for interior corner	VDA-455CMT
S1460 Service/Monitor Cable for FlexiDome analog and IP (2.5 mm connector to BNC), 1 m	S1460
UPA-1509-60 Power Supply 120 VAC, 60 Hz, 15 VDC, 9 VA Out	UPA-1509-60
UPA-1509-50 Power Supply 220 VAC, 50 Hz, 15 VDC, 9 VA Out	UPA-1509-50
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
Software Options	
VP-CFGSFT Configuration Software for cameras using Bilinx, includes VP-USB Adaptor	VP-CFGSFT

LTC 13xx and LTC 14xx Series FlexiDome Fixed Dome Cameras



Features

- ▶ Fixed Cameras in 64 mm (2.5-inch) Domes
- ▶ 1/4-inch Format Standard and High Resolution
- ▶ Full range of color and monochrome models
- ▶ Available with 2.1 mm, 3 mm or 6 mm Lenses
- ▶ All Models with advanced DSP
- ▶ Backlight Compensation
- ▶ 24 VAC Supply with Line-Lock

The FlexiDome I and II Series are fixed compact cameras in stylish surveillance domes: FlexiDome I for standard resolution and FlexiDome II for high resolution applications. The high performance 1/4-inch monochrome or color CCD cameras come in a choice of 2.1 mm, 3 mm or 6 mm integral lenses for super-wide angle or standard view. Wide AC voltage ranges allow flexibility in both PAL and NTSC versions.

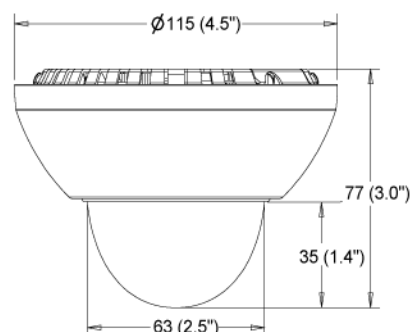
The FlexiDome I & II cameras are easily surface mounted on ceilings or walls to elegantly blend with their environment.. The lightly tinted dome masks the camera without significant f-stop loss. With its 24 VAC supply and line-lock capabilities, this camera is not sensitive to the color interaction between the shutter and fluorescent lighting common to DC-supplied cameras. Various configuration possibilities are available via the easily accessible switches for white balance, line-lock, phase adjustment, and backlight compensation. The camera's viewing direction can be manually adjusted, and the ball mounted construction ensures a stable camera view.

The backlight compensation and wide dynamic range, combined with the many other image enhancement features of the proprietary DSP ensure optimum contrast and a clear picture of the object at any time. Enhanced picture quality, true color reproduction, and outstanding reliability make these domed cameras an excellent choice for indoor applications in retail, casinos, museums, malls, and bank or hotel lobbies.

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity

Installation/Configuration Notes



Dimensions

Parts Included

Quantity	Components
1	LTC 13xx or LTC 14xx Series FlexiDome Fixed Dome Camera with lens

Technical Specifications

Electrical

Models:	FlexiDome I		
	Monochrome	Color	Lens type
LTC 1311		LTC 1411	2.1 mm F/2.0
LTC 1312		LTC 1412	3 mm F/2.0
LTC 1313		LTC 1413	6 mm F/2.0
	FlexiDome II		
LTC 1321		LTC 1421	2.1 mm F/2.0
LTC 1322		LTC 1422	3 mm F/2.0
LTC 1323		LTC 1423	6 mm F/2.0

Model No.	Voltage Range	Mono/Color Systems
<i>Monochrome</i>		
LTC 131x/10, 132x/10	12 to 28 VAC or VDC	CCIR
LTC 131x/20, 132x/20	12 to 28 VAC or VDC	EIA
<i>Color</i>		
LTC 141x/10, 142x/10	12 to 28 VAC or VDC	PAL
LTC 141x/20, 142x/20	12 to 28 VAC or VDC	NTSC
Power is 2 W for all models.		
Imager: Interline transfer CCD; 1/4-inch image format.		
	FlexiDome I	FlexiDome II
Active Picture Elements:		
PAL/CCIR	500 H x 582 V	752 H x 582 V
NTSC/EIA	510 H x 492 V	768 H x 492 V
Horizontal Resolution:		
Color	330 TVL	470 TVL
Monochrome	380 TVL	570 TVL
Signal to noise ratio (Min. AGC)	>46 dB	>48 dB
AGC	18 dB	20 dB
Sensitivity (3200 K):		
	Usable Picture (50IRE)	Full Video
Monochrome		
Scene illumination	0.5 lux (0.05 fc)	2.5 lux (0.25 fc)
Color		
Scene illumination	4.5 lux (0.45 fc)	22 lux (2.2 fc)
F/2 lens, 89.9% scene reflectance.		
Electronic Shutter		
PAL/CCIR Models: 1/50 to 1/100,000 sec.		
NTSC/EIA Models: 1/60 to 1/100,000 sec.		
White Balance (Color Models Only)		
Continuous Tracking (ATW): 2500 K to 9000 K.		
White Balance Store (AWB): 2500 K to 9000 K.		
Video Output 1.0 Vpp, 75 ohm.		
Aperture Correction Horizontal and vertical.		
Synchronization		
Line-lock (when powered by AC): Synchronizes camera to power line zero crossing for roll-free vertical interval switching. Vertical phase delay can be externally adjusted (continuously) to allow vertical synchronization in multiphase power installations.		
Controls		
Line-Lock Selectable On/Off.		
Phase Adjust Range 330°		
White balance ATW or AWB (color models only)		
Backlight Compensation On/Off.		

Connectors

Video Out BNC.

Power Terminal block, power supply terminals are isolated from video output BNC.

Mechanical**Cable Entry Internal connections.****Mounting**

Mounts on wall or ceiling.

Adjustable camera viewing position: 360° Horiz; 70° Vertical; 360° Rotation.

Viewing angle: 2.1mm lens - 90° Horiz., 68° Vert.

Viewing angle: 3mm lens - 53° Horiz., 38° Vert.

Viewing angle: 6mm H lens - 36° x Horiz., 27° Vert.

Construction/Finish

Polycarbonate (PC) dome on molded PC/ABS housing.

Dimensions: 115 mm (4.5 in) diameter x 77 mm (3 in) height.**Weight:** 0.4 kg (0.9 lb).**Environmental**

Rated for indoor use.

Operating Temperature -10 °C to +45 °C (+14 °F to +113 °F)

Storage Temperature -25 °C to +70 °C (-4 °F to +158 °F)

Humidity 0% to 93% relative, non condensing**Electromagnetic Compatibility****EMC Requirements** CE Immunity, CE Emission Class B, FCC Class B.**Safety** CE, UL, cUL.**Ordering Information**

LTC 1311/10 FlexiDome I 1/4-inch B/W CCIR, 380 TVL, 12 VDC/ 24 VAC, 50 Hz, w/2.1 mm fixed iris lens	LTC1311/10
LTC 1311/20 FlexiDome I 1/4-inch B/W EIA, 380 TVL, 12 VDC/24 VAC, 60 Hz, w/2.1 mm fixed iris lens	LTC1311/20
LTC 1312/10 FlexiDome I 1/4-inch B/W CCIR, 380 TVL, 12 VDC/ 24 VAC, 50 Hz, w/3 mm fixed iris lens	LTC1312/10
LTC 1312/20 FlexiDome I 1/4-inch B/W EIA, 380 TVL, 12 VDC/24 VAC, 60 Hz, w/3 mm fixed iris lens	LTC1312/20
LTC 1313/10 FlexiDome I 1/4-inch B/W CCIR, 380 TVL, 12 VDC/ 24 VAC, 50 Hz, w/6 mm fixed iris lens	LTC1313/10
LTC 1313/20 FlexiDome I 1/4-inch B/W EIA, 380 TVL, 12 VDC/24 VAC, 60 Hz, w/6 mm fixed iris lens	LTC1313/20
LTC 1411/10 FlexiDome I 1/4-inch color PAL, 330 TVL, 12 VDC / 24 VAC, 50 Hz, w/2.1 mm fixed iris lens	LTC1411/10
LTC 1411/20 FlexiDome I 1/4-inch color NTSC, 330 TVL, 12 VDC / 24 VAC, 60 Hz, w/2.1 mm fixed iris lens	LTC1411/20

Ordering Information

LTC 1412/10 FlexiDome I 1/4-inch color PAL, 330 TVL, 12 VDC / 24 VAC, 50 Hz, w/3 mm fixed iris lens	LTC1412/10
LTC 1412/20 FlexiDome I 1/4-inch color NTSC, 330 TVL, 12 VDC / 24 VAC, 60 Hz, w/3 mm fixed iris lens	LTC1412/20
LTC 1413/10 FlexiDome I 1/4-inch color PAL, 330 TVL, 12 VDC / 24 VAC, 50 Hz, w/6 mm fixed iris lens	LTC1413/10
LTC 1413/20 FlexiDome I 1/4-inch color NTSC, 330 TVL, 12 VDC / 24 VAC, 60 Hz, w/6 mm fixed iris lens	LTC1413/20
LTC 1321/10 FlexiDome II 1/4-inch B/W CCIR, 570 TVL, 12 VDC / 24 VAC, 50 Hz, w/2.1 mm fixed iris lens	LTC1321/10
LTC 1321/20 FlexiDome II 1/4-inch B/W EIA, 570 TVL, 12 VDC / 24 VAC, 60 Hz, w/2.1 mm fixed iris lens	LTC1321/20
LTC 1322/10 FlexiDome II 1/4-inch B/W CCIR, 570 TVL, 12 VDC/24 VAC, 50 Hz, w/3 mm fixed iris lens	LTC1322/10
LTC 1322/20 FlexiDome II 1/4-inch B/W EIA, 570 TVL, 12 VDC/24 VAC, 60 Hz, w/3 mm fixed iris lens	LTC1322/20
LTC 1323/10 FlexiDome II 1/4-inch B/W CCIR, 570 TVL, 12 VDC / 24 VAC, 50 Hz, w/6 mm fixed iris lens	LTC1323/10
LTC 1323/20 FlexiDome II 1/4-inch B/W EIA, 570 TVL, 12 VDC / 24 VAC, 60 Hz, w/6 mm fixed iris lens	LTC1323/20
LTC 1421/10 FlexiDome II 1/4-inch color PAL, 470 TVL, 12 VDC/24 VAC, 50 Hz, w/2.1 mm fixed iris lens	LTC1424/10
LTC 1421/20 FlexiDome II 1/4-inch color NTSC, 470 TVL, 12 VDC/24 VAC, 60 Hz, w/2.1 mm fixed iris lens	LTC1421/20
LTC 1422/10 FlexiDome II 1/4-inch color PAL, 470 TVL, 12 VDC/24 VAC, 50 Hz, w/3 mm fixed iris lens	LTC1422/10
LTC 1422/20 FlexiDome II 1/4-inch color NTSC, 470 TVL, 12 VDC/24 VAC, 60 Hz, w/3 mm fixed iris lens	LTC1422/20
LTC 1423/10 FlexiDome II 1/4-inch color PAL, 470 TVL, 12 VDC/24 VAC, 50 Hz, w/6 mm fixed iris lens	LTC1423/10
LTC 1423/20 FlexiDome II 1/4-inch color NTSC, 470 TVL, 12 VDC/24 VAC, 60 Hz, w/6 mm fixed iris lens	LTC1423/20

Varifocal Lenses



Features

- ▶ **High-quality optics**
- ▶ **1/3-inch and 1/2-inch formats**
- ▶ **Reliable, robust construction**
- ▶ **Focal length options**
- ▶ **Compact design**
- ▶ **Manual and DC-iris versions**
- ▶ **Manual focus and zoom control**

For optimizing angular fields right on site, varifocal lenses are the most versatile and practical solution available. These lenses allow for setting virtually any angle of field, which maximizes surveillance effects. Installers do not need to carry several different focal length lenses – and installation is more efficient because they can find the right angles of field without moving the camera set-up. If the field-of-view requirements change after installation, modification is simple by just altering the lens' focal length settings.

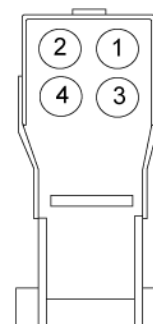
Functions

This series includes both manual and DC-iris varifocal lenses. They are compact, rugged, and available in 1/3-inch and 1/2-inch image formats. The series is organized by sensitivity, optical resolution, and range to match the wide range of Dinion camera applications.

These varifocal lenses come with a standard C or CS mount for use with a variety of cameras. The DC-iris control connection is a four-pin standard plug that fits directly into the camera's iris output. And the lenses deliver impressive optical quality due to their high standards for resolution, contrast reproduction, and coating.

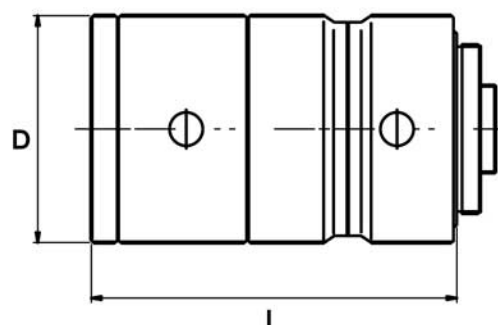
The mechanical construction is designed to withstand both frequent DC-iris control operations and the environmental stress of security installations. For flexible, high-quality, reliable lenses that match a camera's performance, this varifocal series is the ideal solution.

Installation/Configuration Notes

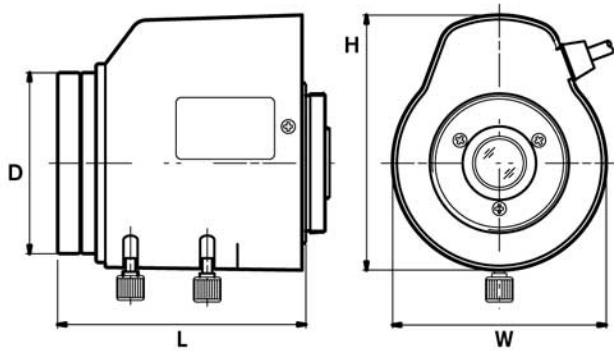


4-pin DC-iris connector (front view)

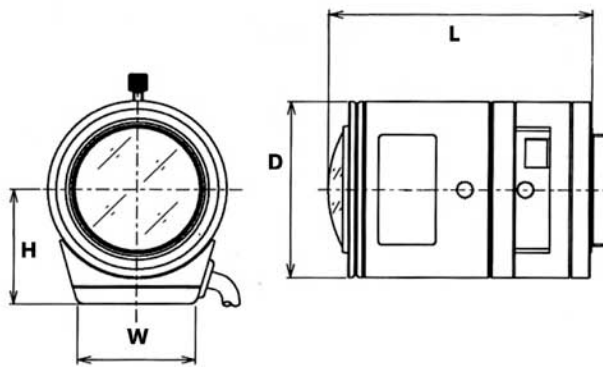
- Pin 1: Damping coil -
- Pin 2: Damping coil +
- Pin 3: Driving coil + (open)
- Pin 4: Driving coil -



Lens type	L mm (in)	D mm (in)
LTC 3361/32	42 (1.65)	36 (1.42)
LTC 3361/41	59 (2.32)	44 (1.73)
LTC 3361/50	55(2.17)	34 (1.34)
LTC 3361/60	45.3 (1.78)	33 (1.3)
LTC 3371/21	59.2 (2.33)	42 (1.65)
LTC 3371/50	61.5 (2.42)	44 (1.73)



Lens Type	L	D	H	W
	mm (in)	mm (in)	mm (in)	mm (in)
LTC 3274/41	77 (3.03)	42 (1.65)	56.8 (2.24)	46.5 (1.83)
LTC 3364/21	44 (1.73)	35.2 (1.39)	45.7 (1.8)	40.4 (1.59)
LTC 3664/30	44.4 (1.75)	35.2 (1.39)	44.7 (1.76)	38.3 (1.51)
LTC 3364/50	55 (2.17)	34 (1.34)	46 (1.81)	40 (1.57)
LTC 3364/60	45.3 (1.78)	33 (1.3)	46.5 (1.83)	39 (1.54)
LTC 3374/50	61.5 (2.42)	44 (1.73)	52.2 (2.06)	44.4 (1.75)



Lens Type	L	D	H	W
	mm (in)	mm (in)	mm (in)	mm (in)
LTC 3364/32	42 (1.65)	33 (1.3)	25.5 (1.0)	22.7 (0.89)
LTC 3364/41	59 (2.32)	41 (1.61)	26 (1.02)	26 (1.02)
LTC 3374/21	59.2 (2.33)	40 (1.57)	32 (1.26)	24.6 (0.97)
LTC 3664/40	59 (2.32)	44 (1.73)	26.2 (1.03)	26.4 (1.04)
LTC 3674/20	55.2 (2.17)	38 (1.5)	27.2 (1.07)	31 (1.22)
LTC 3764/20	53.9 (2.12)	40 (1.57)	31 (1.22)	24.6 (0.97)
LTC 3774/30	62 (2.44)	38.6 (1.52)	31.1 (1.22)	31.8 (1.25)

Technical Specifications

Electrical/mechanical

See comparison table at the end of this datasheet.

Environmental

Operating Temperature	-10°C to +50°C (+14°F to +122°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	Up to 93% non-condensing
Certification	CE (DC-iris models)

Ordering Information

LTC 3274/41 Varifocal Lens 1/2-inch, 7.5 – 75 mm, DC-iris, C-mount, F1.7-360, 4-pin	LTC3274/41
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LTC 3361/32 Varifocal Lens 1/3-inch, 3.0 – 8 mm, manual-iris, CS-mount F1.0-close	LTC3361/32
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LTC 3361/41 Varifocal Lens 1/3-inch, 2.8 to 12 mm, manual-iris, CS-mount F1.4-close	LTC 3361/41
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LTC 3361/50 Varifocal Lens 1/3-inch, 2.8 – 10 mm, manual-iris, CS-mount F1.4-close	LTC3361/50
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LTC 3361/60 Varifocal Lens 1/3-inch, 3.5 – 8 mm, manual-iris, CS-mount F1.4-close	LTC3361/60
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LTC 3364/32 Varifocal Lens 1/3-inch, 3.0 to 8 mm, DC-iris, CS-mount F1.0-360, 4-pin	LTC 3364/32
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LTC 3364/41 Varifocal Lens 1/3-inch, 2.8 to 12 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC 3364/41
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LTC 3364/50 Varifocal Lens 1/3-inch, 2.8 – 10 mm, DC-iris, CS-mount, F1.4-360, 4 pin	LTC3364/50
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LTC 3364/60 Varifocal Lens 1/3-inch, 3.5 – 8 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3364/60
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LTC 3371/21 Varifocal Lens 1/3-inch, 5 to 50 mm, manual iris, CS-mount F1.4-close	LTC 3371/21
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LTC 3371/50 Varifocal Lens 1/3-inch, 5 – 50 mm, manual iris, CS-mount F1.7-close	LTC3371/50
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LTC 3374/50 Varifocal Lens 1/3-inch, 5 – 50 mm, DC-iris, CS-mount F1.7-360, 4-pin	LTC3374/50
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LTC 3374/21 Varifocal Lens 1/3-inch, 5 to 50 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC 3374/21
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LTC 3364/21 Varifocal Lens IR corrected 1/3-inch, 2.8 – 6 mm, DC-iris, CS-mount F1.4-200, 4-pin	LTC3364/21
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LTC 3364/30 Varifocal Lens IR corrected 1/3-inch, 3.0 – 8 mm, DC-iris, CS-mount F1.0-360, 4-pin	LTC3364/30
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LTC 3364/40 Varifocal Lens IR corrected 1/3-inch, 2.8 – 11 mm, DC-iris, CS-mount F1.4-360, 4-pin	LTC3364/40
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Ordering Information

LTC 3674/20 Varifocal Lens IR corrected 1/3-inch, 7.5 – 50 mm, DC-iris, CS-mount F1.3-360, 4-pin	LTC 3674/20
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LTC 3764/20 Varifocal Lens IR corrected 1/2-inch, 4 – 12 mm, DC-iris, C-mount F1.2-360, 4-pin	LTC 3764/20
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LTC 3774/30 Varifocal Lens IR corrected 1/2-inch, 10 – 40 mm, DC-iris, C-mount F1.4-360, 4-pin	LTC 3774/30
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Varifocal Lenses 1/3 and 1/2 inch

**LTC3361/50****LTC3364/50****LTC3361/60****LTC3364/60**

	LTC3361/50	LTC3364/50	LTC3361/60	LTC3364/60
Image format	1/3 inch	1/3 inch	1/3 inch	1/3 inch
Focal length	2.8 – 10 mm	2.8 – 10 mm	3.5 – 8 mm	3.5 – 8 mm
Iris range	F1.4 to close	F1.4 - 360	F1.4 to close	F1.4 - 360
Min object distance	0.3 m (1 ft)	0.3 m (1 ft)	0.3 m (1 ft)	0.3 m (1 ft)
Back focus distance	7.8 mm (0.3 in)	7.8 mm (0.3 in)	8.4 mm (0.33 in)	8.4 mm (0.33 in)
Weight	57 g (0.13 lb)	69 g (0.15 lb)	41 g (0.1 lb)	53 g (0.12 lb)
Lens mount	CS	CS	CS	CS
Angle view Wide (1/3 in.)	83 x 62.4	83 x 62.4	77.6 x 58.2	77.6 x 58.2
Angle view Tele (1/3 in)	28.8 x 21.6	28.8 x 21.6	33.6 x 25	33.6 x 52
Angle view Wide (1/2 in.)	-	-	-	-
Angle view Tele (1/2 in.)	-	-	-	-
Iris control	manual	4-pin, DC control	manual	4-pin, DC control
Focus ctrl	manual	manual	manual	manual
Zoom ctrl	manual	manual	manual	manual

Varifocal Lenses 1/3 and 1/2 inch

**LTC3361/32****LTC 3364/32****LTC 3361/41****LTC 3364/41**

Image format	1/3 inch	1/3 inch	1/3 inch	1/3 inch
Focal length	3 – 8 mm	3 – 8 mm	2.8 – 12 mm	2.8 – 12 mm
Iris range	F1.0 to close	F1.0 - 360	F1.4 to close	F1.4 - 360
Min object distance	0.2 m (0.66 ft)	0.2 m (0.7 ft) to inf.	0.3 m (1 ft)	0.3 m (1 ft) to inf.
Back focus distance	8.4 mm (0.33 in)	8.4 mm (0.33 in)	8.6 mm (0.34 in)	8.6 mm (0.34 in)
Weight	39 g (0.09 lb)	50 g (0.11 lb)	67 g (0.15 lb)	71 g (0.16 lb)
Lens mount	CS	CS	CS	CS
Angle view Wide (1/3 in.)	91 x 66.9	91 x 66.6	97.4 x 72.5	97.4 x 72.5
Angle view Tele (1/3 in)	36 x 26.9	35.9 x 26.9	24.1 x 18.1	24.1 x 18.1
Angle view Wide (1/2 in.)	-	-	-	-
Angle view Tele (1/2 in.)	-	-	-	-
Iris control	manual	4-pin, DC control	manual	4-pin, DC control
Focus ctrl	manual	manual	manual	manual
Zoom ctrl	manual	manual	manual	manual

Varifocal Lenses 1/3 and 1/2 inch

**LTC3371/50****LTC3374/50****LTC 3371/21****LTC 3374/21**

	LTC3371/50	LTC3374/50	LTC 3371/21	LTC 3374/21
Image format	1/3 inch	1/3 inch	1/3 inch	1/3 inch
Focal length	5 – 50 mm	5 – 50 mm	5 – 50 mm	5 – 50 mm
Iris range	F1.7 to close	F1.7 - 360	F1.4 to close	F1.4 - 360
Min object distance	1 m (3.3 ft)	1 m (3.3 ft)	1 m (3.3 ft)	1 m (3.3 ft)
Back focus distance	7.6 mm (0.3 in)	7.6 mm (0.3 in)	10.05 mm (0.4 in)	10.05 mm (0.4 in)
Weight	149 g (0.33 lb)	160 g (0.35 lb)	75 g (0.17 lb)	84 g (0.19 lb)
Lens mount	CS	CS	CS	CS
Angle view Wide (1/3 in.)	50 x 37.8	50 x 37.8	53.4 x 40.1	53.4 x 40.1
Angle view Tele (1/3 in.)	5.5 x 4.1	5.5 x 4.1	5.3 x 4.1	5.3 x 4.1
Angle view Wide (1/2 in.)	-	-	-	-
Angle view Tele (1/2 in.)	-	-	-	-
Iris control	manual	4-pin, DC control	manual	4-pin, DC control
Focus ctrl	manual	manual	manual	manual
Zoom ctrl	manual	manual	manual	manual

Varifocal Lenses 1/3 and 1/2 inch

**LTC3364/21****LTC3664/30****LTC3664/40****LTC 3674/20**

Image format	1/3 inch (IR)	1/3 inch (IR)	1/3 inch (IR)	1/3 inch (IR)
Focal length	2.8 – 6 mm	3 – 8 mm	2.8 – 12 mm	7.5 – 50 mm
Iris range	F1.4 - 200	F1.0 - 360	F1.4 - 360	F1.3 - 360
Min object distance	0.3 m (1.0 ft)	0.3 m (1 ft) to inf.	0.3 m (1 ft) to inf.	0.4 m (1.3 ft)
Back focus distance	7.6 mm (0.3 in)	7.5 mm (0.3 in)	8.6 mm (0.34 in)	8.1 mm (0.32 in)
Weight	59 g (0.13 lb)	60 g (0.13 lb)	79 g (0.17 lb)	68 g (0.15 lb)
Lens mount	CS	CS	CS	CS
Angle view Wide (1/3 in.)	96.9 x 72.5	93.2 x 69	97.4 x 72.4	36.6 x 27.4
Angle view Tele (1/3 in)	46.7 x 35.1	35.2 x 26.4	26.2 x 19.7	5.6 x 4.3
Angle view Wide (1/2 in.)	-	-	-	-
Angle view Tele (1/2 in.)	-	-	-	-
Iris control	4-pin, DC control	4-pin, DC control	4-pin, DC control	4-pin, DC control
Focus ctrl	manual	manual	manual	manual
Zoom ctrl	manual	manual	manual	manual

Varifocal Lenses 1/3 and 1/2 inch

**LTC 3764/20****LTC 3774/30****LTC3274/41**

	LTC 3764/20	LTC 3774/30	LTC3274/41
Image format	1/2 inch (IR)	1/2 inch (IR)	1/2 inch
Focal length	4 – 12 mm	10 – 40 mm	7.5 – 75 mm
Iris range	F1.2 - 360	F1.4 - 360	F1.7 – 360
Min object distance	0.3 m (1.0 ft)	0.5 m (1.6 ft)	0.3 m (1 ft)
Back focus distance	9 mm (0.35 in)	12.4 mm (0.49 in)	8.5 mm (0.34 in)
Weight	68 g (0.15 lb)	87 g (0.19 lb)	220 g (0.48 lb)
Lens mount	C	C	C
Angle view Wide (1/3 in.)	68.9 x 51.3	27.5 x 20.4	35.5 x 26.6
Angle view Tele (1/3 in)	23.4 x 17.5	7.0 x 5.2	3.7 x 2.8
Angle view Wide (1/2 in.)	93.6 x 68.9	37.5 x 27.5	46.2 x 35.5
Angle view Tele (1/2 in.)	31.2 x 23.4	9.2 x 7.0	4.9 x 3.7
Iris control	4-pin, DC control	4-pin, DC control	4-pin, DC control
Focus ctrl	manual	manual	manual
Zoom ctrl	manual	manual	manual

Aegis SuperLED Illuminator



Features

- ▶ **Patent-pending Constant Light technology ensures consistent illumination**
- ▶ **3D Diffuser technology (Black Diamond) delivers even illumination designed specifically for CCTV**
- ▶ **Enables the optimum nighttime performance of analogue and megapixel cameras, IP platforms, and video analytics**
- ▶ **Reduced power consumption for a greener, more environmentally friendly solution with lower operating costs**

Aegis illuminators feature Constant Light technology which automatically controls and adjusts light output to compensate for LED degradation and temperature changes. LED degradation results in poor light output, reduced image quality, and reduced illumination range. The Constant Light patent-pending technology maintains a constant level of light throughout the life of the illuminator, thus overcoming this performance-related issue identified by security consultants, installers, and end users alike.

3D Diffuser technology (Black Diamond) micro-refractive lens technology enables increased surveillance range, wider beam patterns, and evenly illuminated night-time surveillance images. Specifically designed for energy efficient operation, Aegis can be powered directly from any 12 to 24 VDC or 24 VAC supply for faster, flexible, cost effective installations.

Functions

- 3D diffuser technology eliminates hotspots in the foreground and underexposed backgrounds
- Delivers even illumination designed specifically for CCTV
- Dramatically improves night-time imaging, reducing noise and increasing video signal
- When used with encoding and digital recording systems, even illumination reduces bit rate and so lowers storage requirements

Controlled by Constant Light Technology

- Maintains a constant level of lighting performance for the life of the illuminator
- Maintains a constant level of lighting performance when operated at varying ambient temperatures

Installer friendly installation features

- Low voltage input to the illuminator for safe installation
- Illuminator link port allows one illuminator to switch all others in a master/slave configuration
- Dual-mode camera port allows color/mono control from or to the camera
- Easy connection using dedicated cables

High Efficiency Surface Mount LEDs

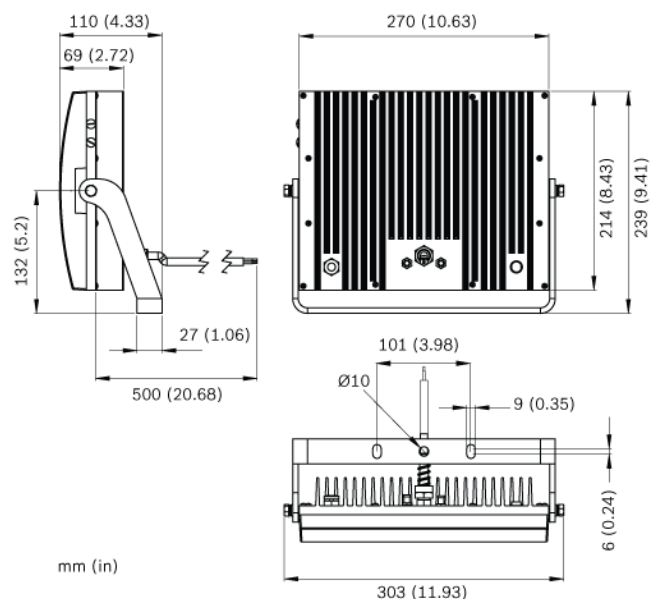
- Industry-leading thermal management and super high-efficient LEDs deliver maximum illumination

Certifications and Approvals

Region	Certification	
Europe	CE	
USA	FCC	+ UL

Installation/Configuration Notes

Dimensions



Technical Specifications

Aegis SuperLED Infrared	
Wavelength	850 nm and 940 nm
Color	Black anodized heat sink with black front fascia
LEDs	High efficiency surface mounted LED array with current-limited integral power circuit
Beam Patterns	10°, 20°, 30°, 60°, 95°, 120°
Consumption	50–90 W (90 W max power)
Input Voltage	12 to 24 VDC or 24 VAC, 50/60 Hz
Temperature Range	–40°C to +50°C (–40°F to 122°F) max. on full power
Environmental	IP66
Construction	Robust, aluminum construction with acrylic front fascia
Weight	3.8 kg (8.4 lb)
Dimensions	305 x 240 x 110 mm (11.9 x 9.4 x 4.4 in)
Power Cable	4 m (13 ft)
Bracket	Wall mount U-bracket supplied

Aegis SuperLED Performance Ranges

Model	Wave-length	Beam Patterns	Achievable Distance*	HFOV
SLED10-8BD	850 nm	10°	320 m (1050 ft)	52 m (170 ft)
SLED20-8BD	850 nm	20°	200 m (655 ft)	70 m (230 ft)
SLED30-8BD	850 nm	30°	160 m (525 ft)	85 m (275 ft)
SLED60-8BD	850 nm	60°	110 m (360 ft)	130 m (425 ft)
SLED95-8BD	850 nm	95°	85 m (275 ft)	185 m (605 ft)
SLED120-8BD	850 nm	120°	55 m (180 ft)	190 m (625 ft)
SLED10-9BD	940 nm	10°	190 m (625 ft)	32 m (105 ft)
SLED20-9BD	940 nm	20°	120 m (395 ft)	42 m (135 ft)
SLED30-9BD	940 nm	30°	95 m (310 ft)	50 m (165 ft)
SLED60-9BD	940 nm	60°	65 m (210 ft)	75 m (245 ft)
SLED95-9BD	940 nm	95°	45 m (145 ft)	100 m (330 ft)
SLED120-9BD	940 nm	120°	30 m (100 ft)	110 m (360 ft)

* Actual illumination distance achieved is dependent on camera and lens characteristics. Use a high performance 1/2-inch format camera and IR-corrected lens at F1.4 to achieve a minimum SN ratio of 20dB.

Ordering Information

SLED10-8BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 10°, 850 nm	SLED10-8BD
SLED20-8BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 20°, 850 nm	SLED20-8BD
SLED30-8BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 30°, 850 nm	SLED30-8BD
SLED60-8BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 60°, 850 nm	SLED60-8BD
SLED95-8BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 95°, 850 nm	SLED95-8BD
SLED120-8BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 120°, 850 nm	SLED120-8BD
SLED10-9BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 10°, 940 nm	SLED10-9BD
SLED20-9BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 20°, 940 nm	SLED20-9BD
SLED30-9BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 30°, 940 nm	SLED30-9BD
SLED60-9BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 60°, 940 nm	SLED60-9BD
SLED95-9BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 95°, 940 nm	SLED95-9BD
SLED120-9BD AEGIS Illuminator AEGIS Intelligent-IR SLED illuminator, 120°, 940 nm	SLED120-9BD
Accessories	
UFLED-CI-5M Switching Cable 5 m (16.4 ft) remote telemetry or day/night switching cable for Aegis illuminators	UFLED-CI-5M
UFLED-CL-1M Link Cable 1 m (3.3 ft) telemetry link cable for Aegis illuminators	UFLED-CL-1M
PSU-224-DC100 Universal Power Supply Universal Power Supply 2x24 VDC	PSU-224-DC100

AEGIS UFLED Intelligent-IR Illuminator



Features

- ▶ **Patent-pending Constant Light technology ensures consistent illumination**
- ▶ **3D Diffuser technology (Black Diamond) delivers even illumination designed specifically for CCTV**
- ▶ **Enables the optimum nighttime performance of analog and megapixel cameras, IP platforms, and video analytics**
- ▶ **Reduced power consumption for a greener, more environmentally friendly solution with lower operating costs**

AEGIS UFLED, the world's first Intelligent-IR illuminator combines innovations in infrared technology and design to deliver absolute performance in night vision surveillance.

Aegis illuminators feature Constant Light technology, which automatically controls and adjusts light output to compensate for LED degradation and temperature changes. LED degradation results in poor light output, reduced image quality, and reduced illumination range. The Constant Light (patent-pending) technology maintains a constant level of light throughout the life of the illuminator, thus overcoming this performance-related issue identified by security consultants, installers, and end users alike.

3D Diffuser technology (Black Diamond) enables increased surveillance range, wider beam patterns, and evenly illuminated nighttime surveillance images. Specifically designed for energy efficient operation, Aegis powers directly from any 12 to 24 VDC or 24 VAC supply for faster, flexible, cost effective installations.

Aegis UFLED has a robust, aluminum construction with acrylic front fascia and works even in harsh environments – guaranteed. It is IP67 rated and has an impressive temperature rating of -50 °C to +50 °C (-58 °F to +122 °F).

Functions

Even illumination

- 3D diffuser technology eliminates hotspots in the foreground and underexposed backgrounds
- Delivers even illumination designed specifically for CCTV
- Dramatically improves nighttime imaging, reducing noise and increasing video signal
- Even illumination reduces bit rate when used with encoding and digital recording systems, thus lowering storage requirements

Controlled by Constant Light technology

- Maintains a constant level of lighting performance for the life of the illuminator
- Maintains a constant level of lighting performance when operated at varying ambient temperatures
- Extended lifetime (typical lifetime 10 years)

Installer friendly installation features

- Low voltage input to the illuminator for safe installation
- Illuminator link port allows one illuminator to switch all others in a master/slave configuration
- Dual-mode camera port allows color/mono control from or to the camera
- Easy connection using dedicated cables

High Efficiency Surface Mount LEDs

- Industry-leading thermal management and super high-efficient LED's deliver maximum illumination

Certifications and Approvals

Region	Certification	
Europe	CE	
USA	FCC	+ UL

Technical Specifications

Illuminator

LEDs	High efficiency LED array with current limited integral power circuit
Number of LEDs	18 high efficiency surface mount LEDs
Wavelength	850 nm or 940 nm
Vertical angles	10° (UFLED10-xxx, UFLED20-xxx, UFLED30-xxx, UFLED60-xxx); 14° (UFLED95-xxx); or 17° (UFLED120-xxx)
Power consumption	26 to 45 W (45 W max power) Power consumption will vary over time due to the intelligent IR's optical output control which compensates for LED degradation and ambient temperature fluctuations
Input Voltage	12 to 24 VDC or 24 VAC, 50/60 Hz

Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F) max on full power
Environment	IP67
Construction	Robust, aluminum construction with acrylic front fascia
Weight	1.4 kg (3.1 lb)
Dimensions	152 x 188 x 115 mm (6.0 x 7.4 x 4.5 in)
Color	Black anodized heat sink with black front fascia
Power Cable	Supplied with IP67 power connector and 5 m (16.4 ft) of connecting lead
Bracket	Wall mount U-bracket supplied
Warranty	5 years

Performance Ranges

Model	Horizontal angle	Achievable Distance*	Horizontal Field of View
UFLED10-8BD	10°	220 m (720 ft)	40 m (125 ft)
UFLED20-8BD	20°	150 m (490 ft)	55 m (175 ft)
UFLED30-8BD	30°	110 m (360 ft)	60 m (195 ft)
UFLED60-8BD	60°	70 m (230 ft)	80 m (265 ft)
UFLED95-8BD	95°	50 m (165 ft)	110 m (300 ft)
UFLED120-8BD	120°	35 m (115 ft)	120 m (400 ft)
UFLED10-9BD	10°	135 m (440 ft)	25 m (80 ft)
UFLED20-9BD	20°	80 m (260 ft)	28 m (100 ft)
UFLED30-9BD	30°	65 m (210 ft)	35 m (115 ft)
UFLED60-9BD	60°	40 m (130 ft)	45 m (145 ft)
UFLED95-9BD	95°	30 m (100 ft)	65 m (210 ft)
UFLED120-9BD	120°	20 m (65 ft)	70 m (230 ft)

* Actual illumination distance achieved is dependent on camera and lens characteristics.

Ordering Information

UFLED10-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 10°, 850 nm	UFLED10-8BD
UFLED20-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 20°, 850 nm	UFLED20-8BD
UFLED30-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 30°, 850 nm	UFLED30-8BD
UFLED60-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 60°, 850 nm	UFLED60-8BD
UFLED95-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 95°, 850 nm	UFLED95-8BD
UFLED120-8BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 120°, 850 nm	UFLED120-8BD
UFLED10-9BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 10°, 940 nm	UFLED10-9BD

Ordering Information

UFLED20-9BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 20°, 940 nm	UFLED20-9BD
UFLED30-9BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 30°, 940 nm	UFLED30-9BD
UFLED60-9BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 60°, 940 nm	UFLED60-9BD
UFLED95-9BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 95°, 940 nm	UFLED95-9BD
UFLED120-9BD AEGIS Illuminator AEGIS Intelligent-IR UFLED illuminator, 120°, 940 nm	UFLED120-9BD
PSU-224-DC100 Universal Power Supply Universal Power Supply 2x24 VDC	PSU-224-DC100
Accessories	
EXPB-3W-KIT Camera and IR Illuminator Wall-mount Kit Wall-mount kit including camera housing for IR Illuminators	EXPB-3W-KIT
UFLED-CI-5M Switching Cable 5 m (16.4 ft) remote telemetry or day/night switching cable for Aegis illuminators	UFLED-CI-5M
UFLED-CL-1M Link Cable 1 m (3.3 ft) telemetry link cable for Aegis illuminators	UFLED-CL-1M
PSU-224-DC100 Universal Power Supply Universal Power Supply 2x24 VDC	PSU-224-DC100
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60

AEGIS UFLED White Light Illuminators



Features

- ▶ **Patent-pending Constant Light technology ensures consistent illumination**
- ▶ **3D Diffuser technology (Black Diamond) delivers even illumination designed specifically for CCTV**
- ▶ **Enables the optimum nighttime color performance of analog and megapixel cameras, IP platforms, and video analytics**
- ▶ **Reduced power consumption for a greener, more environmentally friendly solution with lower operating costs**

AEGIS UFLED, the world's first Intelligent White-Light illuminator combines innovations in lighting technology and design to deliver absolute performance in night vision surveillance.

Aegis illuminators feature Constant Light technology, which automatically controls and adjusts light output to compensate for LED degradation and temperature changes. LED degradation results in poor light output, reduced image quality, and reduced illumination range. The Constant Light (patent-pending) technology maintains a constant level of light throughout the life of the illuminator, thus overcoming this performance-related issue identified by security consultants, installers, and end users alike.

3D Diffuser technology (Black Diamond) enables increased surveillance range, wider beam patterns, and evenly illuminated nighttime surveillance images. Specifically designed for energy efficient operation, Aegis powers directly from any 12 to 24 VDC or 24 VAC supply for faster, flexible, cost effective installations.

Aegis UFLED has a robust, aluminum construction with acrylic front fascia and works even in harsh environments – guaranteed. It is IP67 rated and has an impressive temperature rating of -50 °C to +50 °C (-58 °F to +122 °F).

Functions

Even illumination

- 3D diffuser technology eliminates hotspots in the foreground and underexposed backgrounds
- Delivers even illumination designed specifically for CCTV
- Dramatically improves nighttime imaging, reducing noise and increasing video signal
- Even illumination reduces bit rate when used with encoding and digital recording systems, thus lowering storage requirements

Controlled by Constant Light technology

- Maintains a constant level of lighting performance for the life of the illuminator
- Maintains a constant level of lighting performance when operated at varying ambient temperatures
- Extended lifetime (typical lifetime 10 years)

Installer friendly installation features

- Low voltage input to the illuminator for safe installation
- Illuminator link port allows one illuminator to switch all others in a master/slave configuration
- Dual-mode camera port allows color/mono control from or to the camera
- Easy connection using dedicated cables

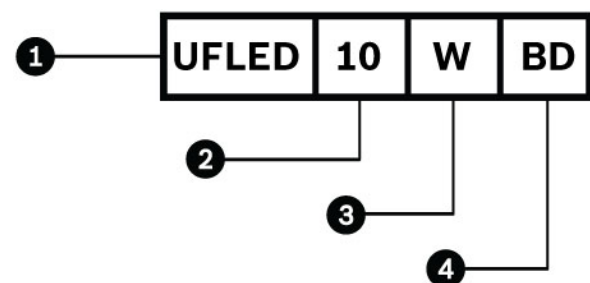
High Efficiency Surface Mount LEDs

- Industry-leading thermal management and super high-efficient LED's deliver maximum illumination

Certifications and Approvals

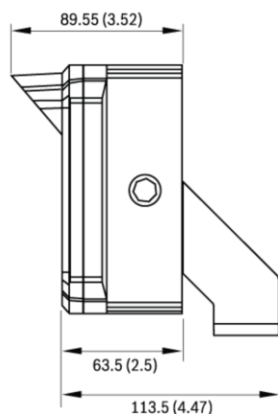
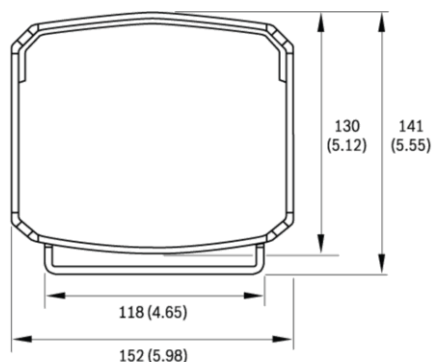
Region	Certification	
Europe	CE	
USA	FCC	+ UL

Installation/Configuration Notes



1. Model	UFLED	AEGIS UFLED
2. Beam Pattern	10	10°
	20	20°
	30	30°
	60	60°
	95	95°
	120	120°
3. Light	W	White light
4. Type	BD	Black Diamond

Dimensions



mm (in)

Technical Specifications

Illuminator

LEDs	High efficiency LED array with current limited integral power circuit
Number of LEDs	18 high efficiency surface mount LEDs
Color temperature	4200 K
Vertical angles	10° (UFLED10-xxx, UFLED20-xxx, UFLED30-xxx, UFLED60-xxx); 14° (UFLED95-xxx); or 17° (UFLED120-xxx)
Power consumption	26 to 45 W (45 W max power) Power consumption will vary over time due to the intelligent IR's optical output control which compensates for LED degradation and ambient temperature fluctuations
Input Voltage	12 to 24 VDC or 24 VAC, 50/60 Hz
Temperature Range	-50 °C to +50 °C (-58 °F to +122 °F) max on full power
Environment	IP67
Construction	Robust, aluminum construction with acrylic front fascia
Weight	1.4 kg (3.1 lb)
Dimensions	152 x 188 x 115 mm (6.0 x 7.4 x 4.5 in)
Color	Black anodized heat sink with clear front fascia
Power Cable	Supplied with IP67 power connector and 5 m (16.4 ft) of connecting lead
Bracket	Wall mount U-bracket supplied

Performance Ranges

Model	Beam Pattern	Achievable Distance*	HFOV
UFLED10-WBD	10°	60 m (195 ft)	10 m (30 ft)
UFLED20-WBD	20°	40 m (130 ft)	15 m (50 ft)
UFLED30-WBD	30°	35 m (115 ft)	20 m (65 ft)
UFLED60-WBD	60°	25 m (80 ft)	30 m (100 ft)
UFLED95-WBD	95°	20 m (65 ft)	45 m (150 ft)
UFLED120-WBD	120°	15 m (50 ft)	50 m (165 ft)

*Actual illumination distance achieved is dependent on camera and lens characteristics.

Ordering Information

UFLED10-WBD AEGIS Illuminator AEGIS Intelligent White Light UFLED illuminator, 10°	UFLED10-WBD
UFLED20-WBD AEGIS Illuminator AEGIS Intelligent White Light UFLED illuminator, 20°	UFLED20-WBD
UFLED30-WBD AEGIS Illuminator AEGIS Intelligent White Light UFLED illuminator, 30°	UFLED30-WBD
UFLED60-WBD AEGIS Illuminator AEGIS Intelligent White Light UFLED illuminator, 60°	UFLED60-WBD

Ordering Information

UFLED95-WBD AEGIS Illuminator AEGIS Intelligent White Light UFLED illuminator, 95°	UFLED95-WBD
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UFLED120-WBD AEGIS Illuminator AEGIS Intelligent White Light UFLED illuminator, 120°	UFLED120-WBD
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Accessories

EXPB-3W-KIT Camera and IR Illuminator Wall-mount Kit Wall-mount kit including camera housing for IR Illuminators	EXPB-3W-KIT
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DPB2 Dome and IR 2-way Pole Bracket Dome & IR 2-way Pole Bracket	DPB2
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DPB2+ Dome and IR 2-way Pole Bracket Dome & IR 2-way Pole Bracket	DPB2+
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DPB4 Dome and IR 4-way Pole Bracket Dome & IR 4-way Pole Bracket	DPB4
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DPB4+ Dome and IR 4-way Pole Bracket Dome & IR 4-way Pole Bracket	DPB4+
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UFLED-CI-5M Switching Cable 5 m (16.4 ft) remote telemetry or day/night switching cable for Aegis illuminators	UFLED-CI-5M
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UFLED-CL-1M Link Cable 1 m (3.3 ft) telemetry link cable for Aegis illuminators	UFLED-CL-1M
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UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	UPA-2450-50
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UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
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EX12LED Black Diamond Infrared Illuminators



Features

- ▶ **Compact cube illuminator**
- ▶ **Powered by Black Diamond even-illumination technology**
- ▶ **850 nm (semi-covert) or 940 nm (covert) models**
- ▶ **Adjustable infrared intensity**
- ▶ **31 m identification range**
- ▶ **30° and 60° beam widths**
- ▶ **Photocell controlled with adjustable day/night switch-point**
- ▶ **Anodized aluminum housing for reliable all-weather operation**

The EX12LED is a versatile and economical infrared illuminator that provides covert lighting for short-range indoor and outdoor security and surveillance applications. At a fraction the power of a standard light-bulb, the EX12LED enables standard day/night CCTV systems to deliver high-contrast images in complete darkness. The EX12LED uses Black Diamond illumination technology to deliver unrivaled illumination consistency across the field of view.

This low-voltage illuminator can be safely and discreetly installed to enhance the night-time performance of both analog and IP CCTV cameras. The EX12LED also enables organizations to save power and reduce light pollution without adversely affecting the performance of the CCTV system.

The EX12LED is ideal for use with IP cameras as a powerful and low-cost tool to offset the bandwidth challenges that affect IP systems at night. When video analytics is employed, the EX12LED is capable of delivering sufficient light to yield a striking improvement in accuracy and in the reduction of false alarms.

Certifications and Approvals

EMC Emissions	FCC Part 15 Class B, EN55022 ClassB
EMC Immunity	EN50130-4 Alarm Systems Part 4
Safety	CSA/UL E60065, CE EN60065
Environmental	NEMA 4X

Installation/Configuration Notes

Application



Hardware included to mount directly to Dinion and Dinion IP.

Technical Specifications

Model	EX12LED-3BD-8W	EX12LED-3BD-8M
LED Type	850 nm	850 nm
LED Beam Angles	60° wide	30° medium
Range	15 m (50 ft)	31 m (102 ft)
HFOV	17 m (56 ft)	16 m (53 ft)

Model	EX12LED-3BD-9W	EX12LED-3BD-9M
LED Type	940 nm	940 nm
LED Beam Angles	60° wide	30° medium
Range	7 m (23 ft)	15 m (50 ft)
HFOV	8 m (26 ft)	8 m (26 ft)
IR Control	Adjustable IR intensity	
Day/night switch	Photocell, sensitivity adjustable	
Electrical		
Power Supply	12 VDC or 24 VAC	
Power Draw	9 W	
Mechanical		
Housing	Aluminum, black	
Front Window	Optical acrylic	
Mount	1/4-inch-20 thread at bottom and rear	
U-Bracket	Standard with 1/4-inch-20 bolt included	
Dimension (WxDxH)	74 x 70 x 70 mm (2.9 x 2.8 x 2.8 in)	
Weight	454 g (1.0 lbs)	
Environmental		
Operation Temperature Range	-50 °C to +60 °C (-58 °F to +140 °F)	

Ordering Information

EX12LED-3BD-8M Infrared Illuminator EX12LED IR Illuminator, 850 nm, 30 deg beam	EX12LED-3BD-8M
EX12LED-3BD-8W Infrared Illuminator EX12LED, IR Illuminator, 850 nm, 60 deg beam	EX12LED-3BD-8W
EX12LED-3BD-9M Infrared Illuminator EX12LED IR Illuminator, 940 nm, 30 deg beam	EX12LED-3BD-9M
EX12LED-3BD-9W Infrared Illuminator EX12LED, IR Illuminator, 940 nm, 60 deg beam	EX12LED-3BD-9W
Accessories	
UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	UPA-2420-50

EX72LED Explosion-protected Infrared Illuminator



Features

- ▶ **Explosion protected infrared illuminator**
- ▶ **100 LED array for 18.3 m (60 ft) of infrared illumination**
- ▶ **ATEX or UL/CSA certified for explosion-protected performance**
- ▶ **Class I, II, III, Div. 1, 2, Groups B, C, D, E, F, G, T6**
- ▶ **Compact design with threaded flame paths for maximum safety**

The EX72LED is a tough, compact, explosion-protected infrared illuminator for effective night time illumination in hazardous environments.

The EX72LED incorporates high-strength design, featuring construction of sand-cast, copper-free aluminum strong enough to withstand an internal explosion. Threaded flame paths extinguish burning explosive gases and allow them to exit the housing harmlessly, without risking ignition in the external environment.

By meeting the rigorous requirements for Class I, Division 1 or ATEX Zone 1 environments, the EX72LED assures safe, effective performance at hazardous Class II and Division 2 locations.

The extended design of the EX72LED accommodates a powerful, high-efficiency 100 LED array that provides up to 18 m (60 ft) infrared illumination with IR sensitive cameras. Options for completely covert operation at 940 nm, as well as 30 ° and 60 ° beams are available for special applications.

Rated NEMA 4X for both indoor and outdoor use, the EX72LED carries a T6 temperature code; the lowest and safest rating. The EX72LED is easy to install into any 12 VDC or 24 VAC system and is a safe and effective night time illumination solution for hazardous locations.

Functions

Applications

- Petroleum processing facilities
- Chemical Facilities
- Agricultural processing plants
- Refineries
- Munitions storage facilities
- Oil and gas plants
- Fuel storage sites
- Industrial plants
- Nuclear facilities
- Pharmaceutical facilities
- Aircraft hangers

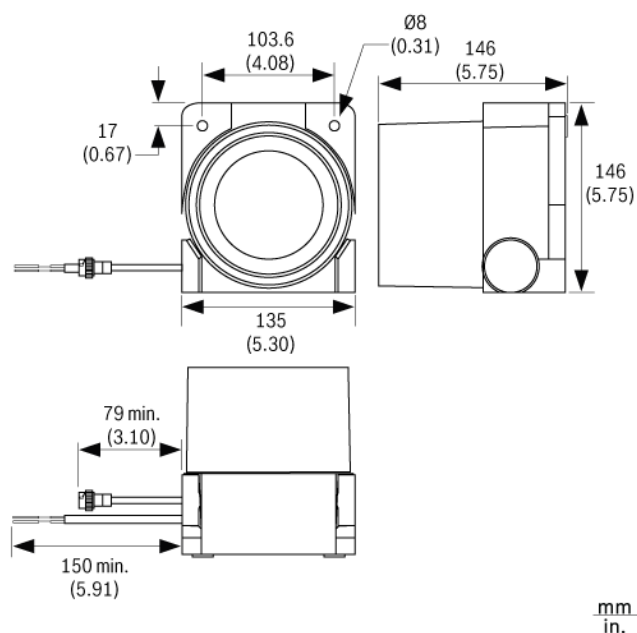
Certifications and Approvals

Region	Certification	
Europe	CE	ATEX
Canada	CSA	
CSA/NRTL	LR 113310	
Class	2258 / 82 - Process Control Equipment - For Hazardous Locations - Certified to US Standard	
	2258 / 02 - Process Control Equipment - For Hazardous Locations	
Safety	UL / CSA / ATEX	
	UL 508, 16th Edition - Industrial Control Equipment	
	UL 698, 11th Edition - Industrial Control Equipment for Use in Hazardous (Classified) Locations	
	UL 1203, 2nd Edition - Explosion-Proof and Dust-Ignition-Proof Elec. Eqmt for Use in Hazardous (Classified) Locations	
	CSA C22.2 No.0-M1991 - General Requirements - Canadian Electrical Code Part II	
	CSA C22.2 No.0.4-M1982 - Bonding and Grounding of Electrical Equipment (Protective Grounding)	
	CSA C22.2 No.25-M1966 - Enclosures for Use in Class II Groups E, F and G Hazardous Locations	
	CSA C22.2 No.30-M1986 - Explosion-proof Enclosures for Use in Class I Hazardous Locations	
	CSA C22.2 No.94-M1991 - Special Purpose Enclosures	
	CSA C22.2 No.142-M1987 - Process Control Equipment	
	Class I, Division 1 and 2, Groups B, C, and D	
	Class II, Division 1 and 2, Groups E, F, G	
	Class III	
	ATEX Ex II 2G certified - Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC	

	ATEX Ex d IIC T6 certified - Equipment or Protective System intended for use in Potentially Explosive Atmospheres; Directive 94/9/EC
Operational	Temperature Code T6 (At ambient operational temperature of 40°C, the maximum unit surface temperature will not exceed 85 °C.)
Environmental	CSA / NEMA TYPE 4X

Installation/Configuration Notes

Dimensions



Technical Specifications

Model	EX72LED8W	EX72LED8M
LED Type	850 nm	850 nm
Beam Angle	60° Wide	30° Medium

Model	EX72LED9M
LED Type	940 nm
Beam Angle	30° Medium

Number of LEDs	100
Power Supply	12 VDC or 24 VAC
Power Draw	15 W max (12 VDC at 1.25 A)
Cabling	Two ¾ in NPT conduit entries
Operation Temperature Range	-50 °C to +40 °C (-58 °F to 104 °F)
Dimensions	145 x 135 x 145 mm (HxWxD) (5.7 x 5.3 x 5.7 in) (HxWxD)
Weight	2.8 kg (6.2 lb)

Note To order a CSA/ UL certified product use product codes without the AT suffix. To order an ATEX certified product use product codes with the AT suffix.

Ordering Information

EX72LED8MAT Explosion-Protected Infrared Illuminator	EX72LED8MAT
EX protected illuminator, 850 nm IR, 30 deg. beam width, ATEX certified	
EX72LED9MAT Explosion-Protected Infrared Illuminator	EX72LED9MAT
EX protected illuminator, 940 nm IR, 30 deg. beam width, ATEX certified	
EX72LED8WAT Explosion-Protected Infrared Illuminator	EX72LED8WAT
EX protected illuminator, 850 nm IR, 60 deg. beam width, ATEX certified	

Accessories

EXMB.028B Cable Managed Wall Bracket	EXMB.028B
Cable-managed arm bracket, black	
EXMB.015B Pole Mount Adapter Bracket	EXMB.015B
Pole Mount Adapter, black	
EXMB.017B Wall Mount Adapter Bracket	EXMB.017B
Wall Mount Adapter, Black	
UPA-2420-50 Power Supply	UPA-2420-50
220 VAC, 50 Hz, 24 VAC, 20 VA Out	

EX60LED Explosion Protected Infrared Illuminator



Features

- ▶ Heavy Duty Extruded Aluminum Design
- ▶ Class I, Div 1 & 2, Group A, B, C, D
- ▶ Class II, Div 1 & 2, Group E, F, G
- ▶ Class III
- ▶ Equipped in CSA NRTL approved housing
- ▶ Easy access slide tray for camera guide
- ▶ 3/8 in. chemical resistant window
- ▶ 100 LEDs for 60 ft. (18.3 m) performance
- ▶ 3/4 NPT Conduit Hole Input

The EX60LED series are tough, compact, explosion protected infrared illuminators for effective nighttime illumination in hazardous environments.

Its Class I, Groups A and B ratings for Acetylene and Hydrogen makes this housing unique in industry.

The extended design of the EX60LED accommodates a powerful, high-efficiency 100 LED array that provides up to 60ft infrared illumination with IR sensitive cameras. Options for completely covert operation at 940 nm, as well as 30° and 60° beams are available for special applications.

The EX60LED is also designed to CCTV industry standards for mounting hardware and motorized pan/tilt devices.

Functions

Applications

- Chemical factories
- Petroleum refineries, oil and gas processing
- Utility gas plants

- Grain elevators, flour mills
- Dry cleaning plants
- Pharmaceutical plants
- Coal and carbon processing
- Aircraft hangars
- Spray finishing areas
- Munitions and fuel storage facilities

Certifications and Approvals

Region	Certification
Canada	CSA
CSA-NRTL	LR 113310
Class	9098 01 / 81 Miscellaneous - for Hazardous Locations
Safety	UL / CSA
	UL 508, Sixteenth Edition - Industrial Control Equipment
	UL 698, Eleventh Edition - Industrial Control Equipment for Use in Hazardous (Classified) Locations
	UL 1203 Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
	CSA C22.2 No.0-M1991 General Electrical Requirements
	CSA C22.2 No.0.4-M1982 Bonding and Grounding of Electrical Equipment (Protective Grounding)
	CSA C22.2 No.25-M1966 Enclosures for Use in Class II Groups E, F, and G Hazardous Locations
	CSA C22.2 No.30-M1986 Explosion-proof Enclosures for Use in Class I Hazardous Locations
	CSA C22.2 No.94-M1991 Special Purpose Enclosures
	CSA C22.2 No.142-M1987 Process Control Equipment
	Class I, Div 1, 2, Groups A, B, C, D
	Class II, Div 1, 2, Groups E, F, G
	Class III
Operational	Temperature Code T6 at maximum ambient temperature 55°C (131°F)
Environmental	CSA / NEMA TYPE 4
Note	Product is not ATEX certified.

Technical Specifications

Model	EX60LED8W	EX60LED8M	EX60LED9M
LED Type	850 nm	850 nm	940 nm
LED Beam Angles	60° wide	30° medium	30° medium
Number of LEDs	100		
Power Supply	12 VDC or 24 VAC		
Power Consumption	15 W (max.)		
Construction	Extruded copper-free anodized aluminum with three 3/4-inch NPT conduit entries		
View window	3/8-inch tempered glass		
Brackets	U-bracket and stainless steel straps included		

Dimensions	128 x 191 mm (5.0 x 7.0 in)
Weight	4.5 kg (10 lbs)
Operating Temperature	-50°C to +55°C (-58°F to +131°F)
Temperature Code	T6 at 55°C

Ordering Information

EX60LED8W Explosion Protected Infrared Illuminator	EX60LED8W
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Explosion protected illuminator, 100 LED,
850 nm, 60 deg beam

EX60LED8M Explosion Protected Infrared Illuminator	EX60LED8M
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Explosion protected illuminator, 100 LED,
850 nm, 30 deg beam

EX60LED9M Explosion Protected Infrared Illuminator	EX60LED9M
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Explosion protected illuminator, 100 LED,
940 nm, 60 deg beam

UHI-OG(S)-0 Indoor Camera Housing



Features

- ▶ Protects camera/lens combinations up to 317 mm (12.48 in) length
- ▶ Hinged side opening for easy installation and camera setup
- ▶ Strong aluminum construction
- ▶ Cable routing through base or rear of housing
- ▶ Tamper-resistant
- ▶ Self cleaning glass

The Indoor Camera Housing is a smartly styled unit, intended for use inside. This housing is both cost-competitive and installer-friendly.

Functions

Easy installation

The unique, hinged, side-opening design provides easy installation of all camera/lens combinations, and allows access to most camera and lens controls when the housing is mounted. Route power, video, and lens control cabling through the liquid-tight fittings in the bottom rear of the housing, or for even better cable management, via the feed-through entry holes in the base. Mounting holes in the base permit installation to a wide range of pan/tilts, adjustable heads, and various camera-mounting brackets.

Dinion ready

This housing supports installation of Dinion style cameras with fixed focal, varifocal, or up to a 15x motorized zoom lens.

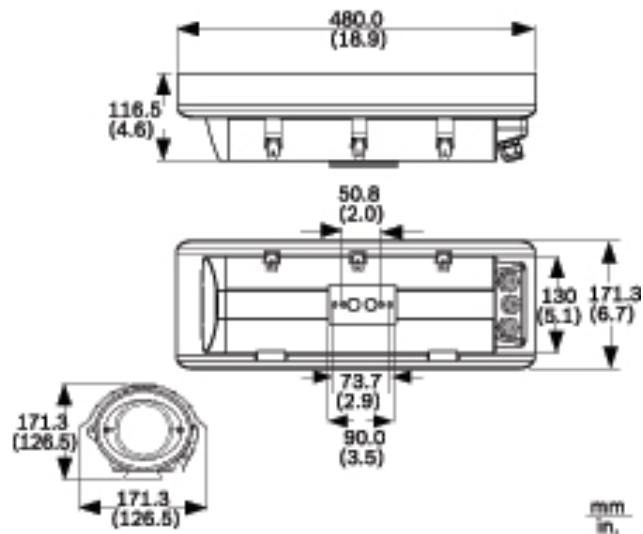
Secure

For increased security, the units come with tamper-resistant screws for the locking clasps to prevent illegitimate access to the housing contents. The housing is an optimal solution for protecting your indoor video surveillance applications.

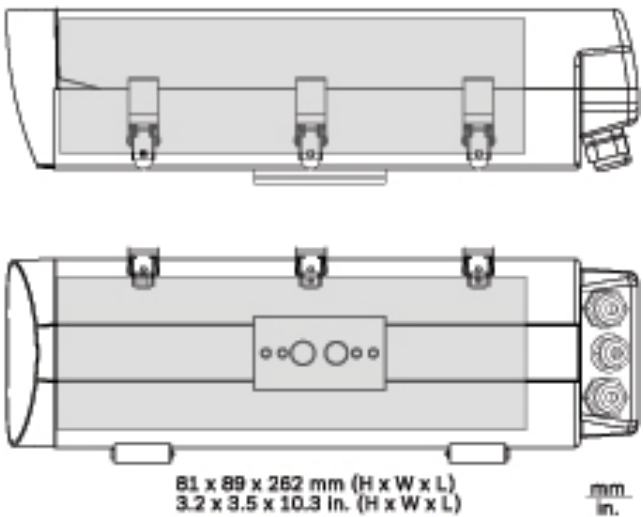
Certifications and Approvals

Region	Certification	
Europe	CE	UHI-OGx
Safety	acc. to EN 60950-1 (CE)	
	acc. to UL 2044-1; CAN/CSA C 22.2 no. 1-98	
Immunity	acc. to EN 50130-4 (CE)	
Emission	acc. to EN 55022 class B (CE)	
	acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE)	
	acc. to FCC CFR 47 Part 15, Class B	

Installation/Configuration Notes



Dimensions in mm for UHI-OG(S)-0 housings indoor units



Dimensions in mm maximum internal usable space available (based on camera/lens size)

Note Allowance is provided for wiring and connector space requirements

Parts Included

Quantity Component

1	UHI-OG-0 Indoor Housing
1	Sunshield (UHI-OGS-0 only)

Technical Specifications

Electrical/Mechanical

Rear fitting	1 x, cable diameter 4.0 to 7.0 mm (0.16 to 0.28 in)
Rear fittings	2 x, cable diameter 6.5 to 10.5 mm (0.26 to 0.42 in)
Bottom feeds	2 x, cable diameter 4.0 to 7.0 mm (0.16 to 0.28 in)
Window	3 mm (0.12 in) glass
Locking clasps	Tamper-resistant screws provided
Camera power ratings	24/120/230 VAC, 50/60 Hz, 6.3 A
Camera mounting	Removable camera/lens tray, mounted with two screws
Max camera + lens size (H x W x L)	81 x 89 x 317 mm (3.19 x 3.50 x 12.48 in)
Construction	Aluminum casing, neoprene gaskets, all stainless steel hardware
Dimensions	See drawings
Weight	2.3 kg (5.1 lb)
Mounting	2 x pair of tapped holes
thread	1/4-20
inner pair	50.8 mm (2.0 in) center spread
outer pair	73.7 mm (2.9 in) center spread
Color	Gray

Environmental

Operating temperature	-40 °C to +50 °C (-40 °F to +122 °F)
Enclosure protection	IP66, NEMA-4X

Ordering Information

UHI-OG-0 Indoor Housing	UHI-OG-0
UHI-OGS-0 Indoor Housing with Sunshield	UHI-OGS-0

UHI-SBG-0 Series Indoor Housing



Features

- ▶ Economical indoor housing with mount
- ▶ Aluminum mount included
- ▶ Feed-through wiring option
- ▶ Glass fiber reinforced ABS
- ▶ Accommodates 1/4-inch, 1/3-inch, and 1/2-inch CCD cameras

The UHI-SBG-0 Housing is smartly styled for indoor use. This housing meets customers' demands for attractive housings that are both cost competitive and easy to install. They fit a wide range of 1/4 in., 1/3 in., and 1/2 in. format CCD cameras and varifocal lenses.

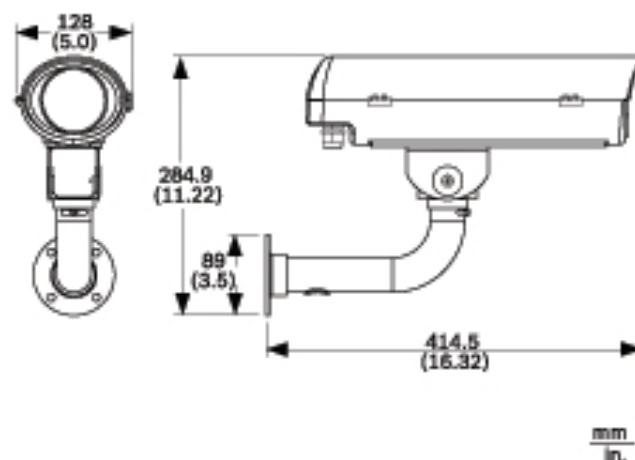
Functions

The design of these housings is unique. Removal of two tamper-resistant screws is all that is necessary to open the cover and totally expose the camera and lens. This allows access to all camera and lens controls when the camera is in its mounted position. Power and video cabling can be routed through liquid tight fittings in the bottom or rear of the housing. To complete this set, a sturdy aluminum feed-through mount is added.

Certifications and Approvals

Product Safety CE, UL, cUL

Installation/Configuration Notes



Parts Included

Quantity	Component
1	Indoor housing
1	Aluminum bracket

Technical Specifications

Electrical

Maximum Camera Power	Max. 10 W 24 VAC–230 VAC, 50/60 Hz, 0.5 A
----------------------	--

Mechanical

Max Camera/Lens Size (W x H x L)	80 x 60 x 210 mm (3.1 x 2.3 x 8.2 in.)
Cable Entry	Two liquid tight rear fittings accept cable diameters from 6.5 mm to 10.5 mm (0.26 in. to 0.42 in.). Two bottom feed-through liquid tight fittings accept cable diameters from 4.0 mm to 7.0 mm (0.16 in. to 0.28 in.).
Window	3 mm (0.12 in.) thick glass.
Housing Mounting	Includes one J-mount. Four (4) available 1/4 -20 tapped holes.
Camera Mounting	Removable camera bracket. Mounted with one screw.
Construction/Finish	Reinforced with glass fiber ABS, stainless steel hardware.
Finish	Dark mushroom.
Dimensions	See UHI-SBG-0 drawing.
Weight	1.0 kg (2.2 lb) including bracket.

Environmental

Temperature	-10°C (14°F) to 50°C (122°F)
Enclosure Protection	IP30 (indoor use only)

Ordering Information

UHI-SBG-0 Series Indoor Housing

For camera/lens lengths up to 210 mm
(8.2 in.)

UHI-SBG-0

LTC 9480/00 Indoor Housing



Features

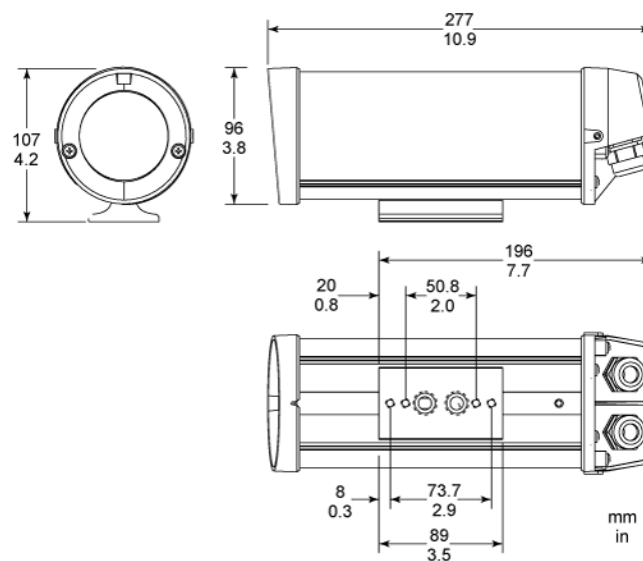
- ▶ For 1/4-inch, 1/3-inch and 1/2-inch CCD Cameras
- ▶ Feed-through Wiring Option
- ▶ Aluminum and Advanced Polymer Construction
- ▶ Easy Installation
- ▶ Full Camera Accessibility
- ▶ Cost Competitive
- ▶ Multiple Accessories Available

The LTC 9480/00 Housing is smartly styled for indoor use. This housing meets customers' demands for attractive housings that are both cost competitive and easy to install. They fit a wide range of 1/4-inch, 1/3-inch and 1/2-inch format CCD cameras and lenses.

Functions

The design of these housings is unique. Removal of two captive screws is all that is necessary to slide off the cover and totally expose the camera and lens. This allows access to all camera and lens controls when the camera is in its mounted position. Power and video cabling can be routed through liquid tight fittings in the bottom rear of the housing or can be routed through the mounting base. Feed-through mounts and J-mounts are available for these housings. The base of the housing permits mounting to pan/tilts, adjustable heads, and various wall mounts.

Installation/Configuration Notes



Dimensional Outline

Parts Included

Quantity Component

1	LTC 9480/00 Indoor Housing
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Technical Specifications

Electrical

Maximum Camera Power	Use with 24 VAC cameras not exceeding 30 W
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Mechanical

Maximum Camera and Lens (W x H x L)	68 x 54 x 197 mm (2.68 x 2.1 x 7.75 in.)
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Cable Entry:

Two liquid tight rear fittings accept cable diameters from 4.3 mm to 11.9 mm (0.17 in to 0.47 in.). Two bottom feed-through liquid tight fittings accept cable diameters from 4.6 mm to 7.9 mm (0.18 in to 0.31 in.).

Window	3 mm (0.12 in.) thick UV-stabilized polycarbonate.
Housing Mounting	Four (4) available 1/4-20 tapped holes. Only one set of two are required for mounting.
Camera Mounting	Removable camera bracket. Mounted with two screws.
Construction	Aluminum cover, aluminum base, aluminum mounting foot, polycarbonate faceplate, glass reinforced polycarbonate end caps, neoprene gasket, ethylene propylene seal, and all stainless steel hardware.
Finish	Dark mushroom.
Dimensions	See LTC 9480/00 drawing.
Weight	1.4 kg (3 lb)

Environmental

Salt Atmosphere	MIL-STD-810E, Method 509, Procedure 1.
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Enclosure Protection	Designed to NEMA-3R, IP55.
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Electromagnetic Compatibility

Safety	CE, UL, cUL
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Accessories

LTC 9080/00 Tamper Resistant Kit	Includes 10 screws and insertion tool to permit tamper resistance for five housings.
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LTC 9215/00 Feed-through Mount	Attached to the foot of the housings, allows wires to be fed-through the mount and into the foot of the housing.
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LTC 9219/01 Feed-through J-Mount	Allows housing to be mounted from ceiling.
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Suggested Applications**Camera Lens**

LTC 0335 Fixed/Varifocal

LTC 0355 Fixed/Varifocal

LTC 0435 Fixed/Varifocal

LTC 0455 Fixed/Varifocal

1. The camera mounting block must be removed.

Ordering Information

LTC 9480/00 Indoor Housing
for camera/lens to 175 mm (6.9 in)

LTC9480/00

LTC 9369/00 Indoor Housing



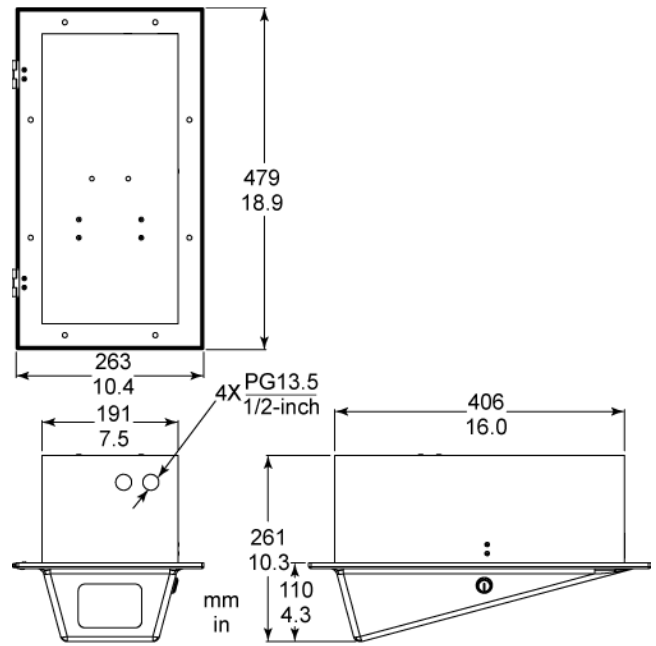
Features

- ▶ For Fixed or Suspended Ceilings
- ▶ Convenient Key Lock Access
- ▶ Easy Installation
- ▶ Attractive Low Profile Styling
- ▶ Suitable for Use in Environmental Air Spaces
- ▶ Rotatable Ceiling Tile Mounting Kits Available

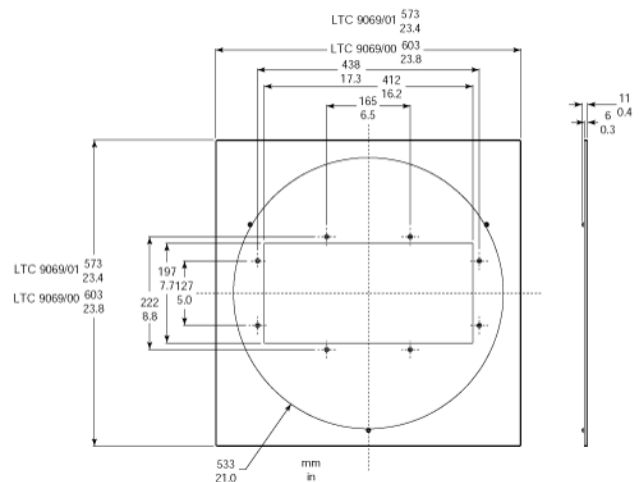
The LTC 9369/00 is an aesthetically designed indoor ceiling housing for CCTV camera installations. This housing can be easily mounted in fixed or suspended ceilings and is ideal for any application where attractive and discreet CCTV monitoring is required. The LTC 9369/00 construction consists of a tough acrylic/PVC alloy plastic cover hinged to an aluminized steel backbox. This construction allows the LTC 9369/00 to be used in environmental air spaces or in air handling plenum of non fire-resistant ceilings. Other construction features include: key lock access, a polycarbonate window, an adjustable camera mount system, and cable entry through conduit knockouts.

Optional Mounting kits are available for 2 ft x 2 ft and 600 mm x 600 mm suspended ceiling tiles. These mounting kits allow 360° rotation and easy installation.

Installation/Configuration Notes



Dimensional Outline



Dimensional Outline

Parts Included

Quantity Component

1	LTC 9369/00 Indoor Housing
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Technical Specifications

Mechanical

Maximum Camera/Lens Size:

Accepts camera/lens combinations up to: 330 L x 102 W x 102 H mm (13 x 4 x 4 in.).

Cable Entry	Wiring access available through four (two front and two back) PG13.5 (1/2 in.) conduit knockouts.
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Window	3.2 mm (0.13 in.) thick polycarbonate.
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Housing Mounting	Eight protected 7 mm (0.27 in.) holes in backbox. Top of backbox contains two 6 mm (0.25 in.) knockouts for safety cable wiring.
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Camera Mounting	Two piece adjustable mounting system.
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Construction/Finish:

Cover	1.6 mm (0.06 in.) acrylic/PVC alloy plastic with a haircell texture and light gray color.
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Backbox	1 mm (0.04 in.) aluminized steel.
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Dimensions	See Dimensional Outlines
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Weight	3.4 kg (7.5 lb)
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Environmental

Enclosure Protection	Cover and window meet UL Flame Rating 94V-0.
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Electromagnetic Compatibility

EMC Requirements	FCC Class B, ICES-003
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Safety	UL, cUL
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Accessories

Mounting Kits	Ceiling tile mounting kits for suspended ceiling installations. Constructed of 1 mm (0.04 in.) aluminized steel painted with light gray powder coat. Rotates through 360°.
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LTC 9069/00	Replaces a 2 ft x 2 ft ceiling tile
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LTC 9069/01	Replaces a 600 x 600 mm ceiling tile
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Ordering Information

LTC 9369/00 Indoor Housing	LTC9369/00
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drop ceiling mount, tamper resistant, camera lens up to 300 mm (13 in)

Accessories

LTC 9069/00 Mounting Kit	LTC9069/00
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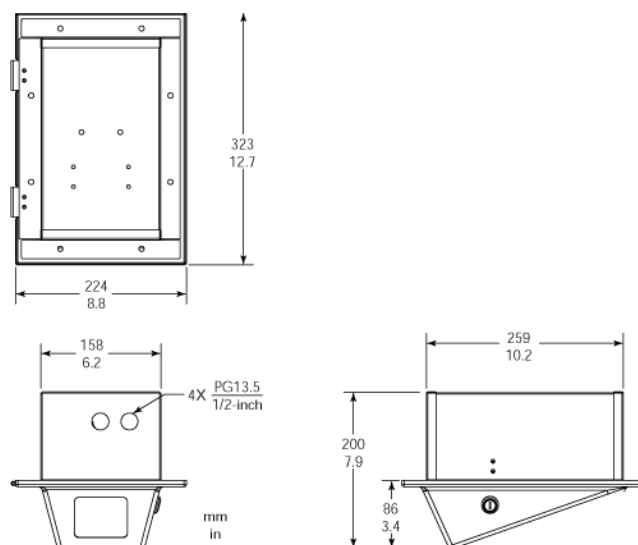
LTC 9069/01 Mounting Plate	LTC9069/01
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600 mm x 600 mm (2 ft x 2 ft), for LTC 9369

LTC 9370/00 Indoor Housing



Installation/Configuration Notes



Dimensional Outline

Features

- ▶ For Fixed or Suspended Ceilings
- ▶ Convenient Key Lock Access
- ▶ Easy Installation
- ▶ Attractive Low Profile Styling
- ▶ Suitable for Use in Environmental Air Spaces
- ▶ Rotatable Ceiling Tile Mounting Kits Available

The LTC 9370/00 is an aesthetically designed, small, low profile indoor ceiling housing for CCTV camera installations. This housing can be easily mounted in fixed or suspended ceilings and is ideal for any application where attractive and discreet CCTV monitoring is required.

The LTC 9370/00 construction consists of a tough acrylic/ PVC alloy plastic cover hinged to an aluminized steel backbox. This construction allows the LTC 9370/00 to be used in environmental air spaces or in air handling plenum of a non fire-resistant ceiling. Other construction features include key lock access, a polycarbonate window, an adjustable camera mount system, and cable entry through conduit knockouts.

Optional Mounting kits are available for 2 ft x 2 ft and 600 mm x 600 mm suspended ceiling tiles. These mounting kits allow 360° rotation and easy installation.

Parts Included

Quantity	Component
1	LTC 9370/00 Indoor Housing

Technical Specifications

Mechanical

Maximum Camera/ Lens Size	Accepts camera/lens combinations up to 208.3 L x 69.8 W x 63.5 H mm (8.2 x 2.75 x 2.5 in).
Cable Entry	Wiring access available through four (two front and two back) PG13.5 (1/2 in) conduit knockouts.
Window	3.2 mm (0.13 in) thick polycarbonate.
Housing Mounting	Eight protected 7 mm (0.27 in) holes in backbox. Top of backbox contains two 6 mm (0.25 in) knockouts for safety cable wiring.
Camera Mounting	Two piece adjustable mounting system.

Construction/Finish

Cover	1.6 mm (0.06 in) acrylic / PVC alloy plastic with a haircell texture and light gray color.
Backbox	1 mm (0.04 in) aluminized steel.
Dimensions	See Dimensional Outline.
Weight	2.4 kg (5.3 lb).

Environmental

Enclosure Protection	Cover and window meet UL Flame Rating 94V-0.
Accessories	
Mounting Kits	Ceiling tile mounting kits for suspended ceiling installations. Constructed of 1 mm (0.04 inch) aluminized steel painted with light gray powder coat. Rotates through 360°.
LTC 9070/00	Replaces a 2 ft x 2 ft ceiling tile.
LTC 9070/01	Replaces a 600 mm x 600 mm ceiling tile.

Ordering Information

LTC 9370/00 Indoor Housing drop ceiling mount, tamper resistant, camera/lens up to 200 mm (8 in)	LTC9370/00
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Accessories

LTC 9070/00 Mounting Plate 600 mm x 600 mm (2 ft x 2 ft), for LTC 9370/00	LTC9070/00
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LTC 9070/01 Mounting Plate 600 mm x 600 mm (2 ft x 2 ft), for LTC 9370/00	LTC9070/01
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LTC 9365/00 Indoor Housing



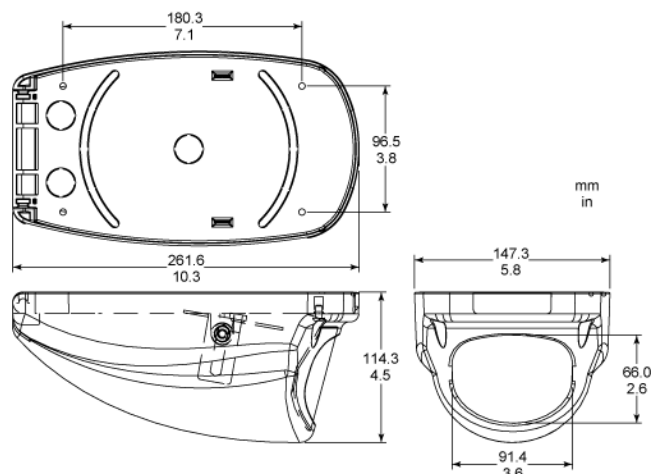
Features

- ▶ **Compact Design**
- ▶ **Hinged Design and Latch for Easy Installation**
- ▶ **Scratch-resistant Window**
- ▶ **Polycarbonate Housing and Window**
- ▶ **Tamper-resistant Fasteners**
- ▶ **Lightweight**
- ▶ **Fully Adjustable Camera Bracket**

The LTC 9365/00 is an attractive and compact ceiling wedge housing. It can be used with most standard CCTV camera and lens combinations, up to 203 mm (8 in) in length.

Both the housing and the viewing window are made of lightweight, impact-resistant polycarbonate, and include tamper-resistant screws for increased security. Included in the housing is a fully adjustable camera bracket that allows the camera to be top or bottom mounted. Additionally, the hinged design and snap fit allow for easy installation and future servicing.

Installation/Configuration Notes



Dimensional Outline

Parts Included

Quantity	Component
1	LTC 9365/00 Indoor Housing

Technical Specifications

Mechanical

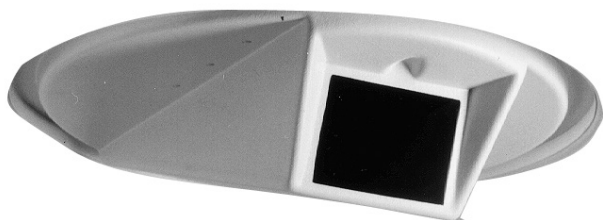
Model No.	Description
LTC 9365/00	In-ceiling Wedge Housing
Max Camera/Lens Length (L x W x H)	203.2 x 88.9 x 76.2 mm (8 x 3.5 x 3 in.)
Cable Entry	Wire access through one of three possible locations on rear of housing
Cover	Secured by two (2) tamper-resistant screws
Mounting	Ceiling-mounted using four (4) screws
Window	Clear, polycarbonate
Construction	Polycarbonate
Finish	Off-white
Dimensions	See Dimensional Outline
Weight	0.45 kg (1 lb)
Use with Bosch Cameras and Lenses	
Camera	Lens
LTC 0335	Fixed, Varifocal
LTC 0355	Fixed, Varifocal
LTC 0435	Fixed, Varifocal
LTC 0455	Fixed, Varifocal

Ordering Information

LTC 9365/00 Indoor Housing
for ceiling surface mount, camera lens up to
200 mm (8 in)

LTC9365/00

TC9376H Ceiling Housing



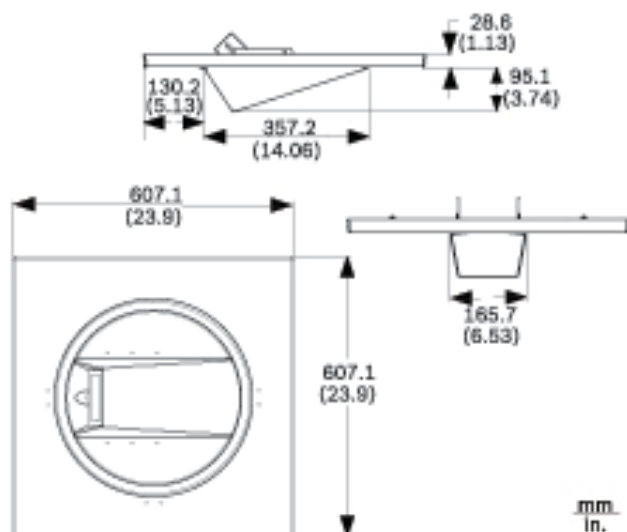
Features

- ▶ Mounts fixed camera and lens in suspended ceiling
- ▶ Lightweight plastic housing
- ▶ Rotates and locks in any position
- ▶ Low profile design
- ▶ Scratch resistant window
- ▶ Camera brackets included

This low profile housing is designed to mount various fixed cameras and lenses into a suspended ceiling, replacing a 2 x 2 ft ceiling tile. The 360° viewing is provided by rotating the housing body to the desired view, and locking into position.

The TC9376H is equipped with an adjustable camera bracket and scratch resistant window. All material is thermoformed from high impact 0.187 in. thick 94 HB ABS plastic.

Installation/Configuration Notes



Dimensional Outline

Technical Specifications

Model

TC9376H	Ceiling housing
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Mechanical

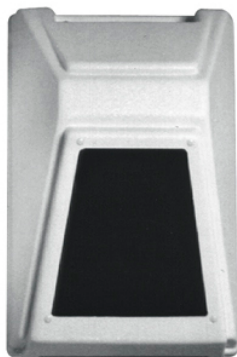
Max Camera/Lens Size	Accepts cameras with lengths up to 279 mm (11 in.); includes fully extended lens and rear cable connectors
Cable Entry	Access through top of housing
Window	101.6 x 73.7 mm (4 x 2.9 in.) clear acrylic, enclosed in a snap-in mount
Housing Mounting	Replaces 2 x 2 ft ceiling panel
Camera Mounting	Adjustable stainless steel camera bracket
Construction	4 mm (0.187 in.) 94 HB ABS plastic housing
Finish	Off-white
Dimensions	See dimensional outline
Weight	2 kg (4.4 lb)

Ordering Information

TC9376H Ceiling Housing

TC9376H

TC2073 Series Maximum Security Housings



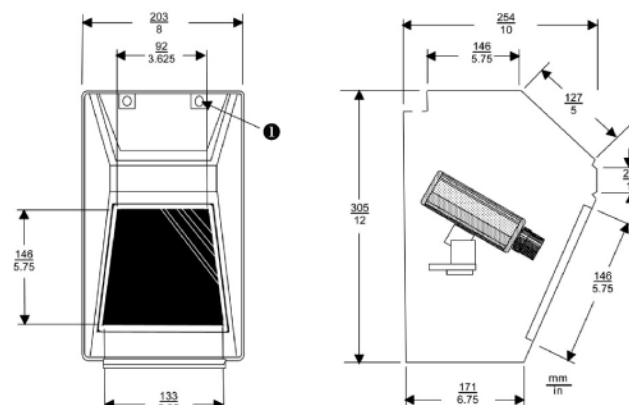
Features

- ▶ For Fixed Lens Applications
- ▶ ABS Plastic Construction
- ▶ Easy Installation and Service
- ▶ Thick Acrylic Viewing Window
- ▶ Adjustable Camera Bracket
- ▶ Tamperproof

The TC2073 Series are inside corner-mounted, institutional-grade housings designed for monitoring dining halls, exercise rooms, visit areas, as well as elevators, stairwells, lobbies, and mantraps.

These housings are designed to be corner-mounted. The housing has a sloped front cover for corner mounting below the ceiling level. It is available with a clear or tinted acrylic window. The TC2073 Series will accept most 1/3-inch, 1/2-inch and 2/3-inch format CCD cameras with fixed auto-iris lenses.

Installation/Configuration Notes



Dimensional Outline

- 1 Security fasteners (2)

Parts Included

Quantity	Component
1	TC2073 (/T)

Technical Specifications

Models:

TC2073	Clear window for color cameras
TC2073T	Tinted window; one f-stop light reduction

Mechanical

Maximum Camera/Lens Size (L x W x H)	Accepts cameras up to 109 x 101 mm (9 x 4.3 x 4 inch)
Cable Entry	Access through rear of housing
Window	6 mm (0.25 in) thick acrylic
Construction	94HB, 4 mm (0.187 in) ABS plastic housing with stainless steel hinged front cover. Front cover is equipped with captive security fasteners; special tool included.
Finish	Textured beige enamel
Dimensions	See Dimensional Outline
Weight	1.4 kg (3 lb)

Ordering Information

TC2073T
Housing, plastic

TC2073T

LTC 9303 Series Indoor Housings



Features

- ▶ **Rugged Cast Aluminum Construction - Equivalent to 10 Gauge Steel**
- ▶ **Corner-Mounted Installation**
- ▶ **Scratch-Resistant Polycarbonate Window**
- ▶ **Adjustable Camera Mounting System**
- ▶ **Attractive Styling**

The LTC 9303 Series are inside corner-mounted detention-grade security housings, designed for applications such as prisons, parking garages, and hospitals. These housings are ideal for any application requiring secure CCTV monitoring.

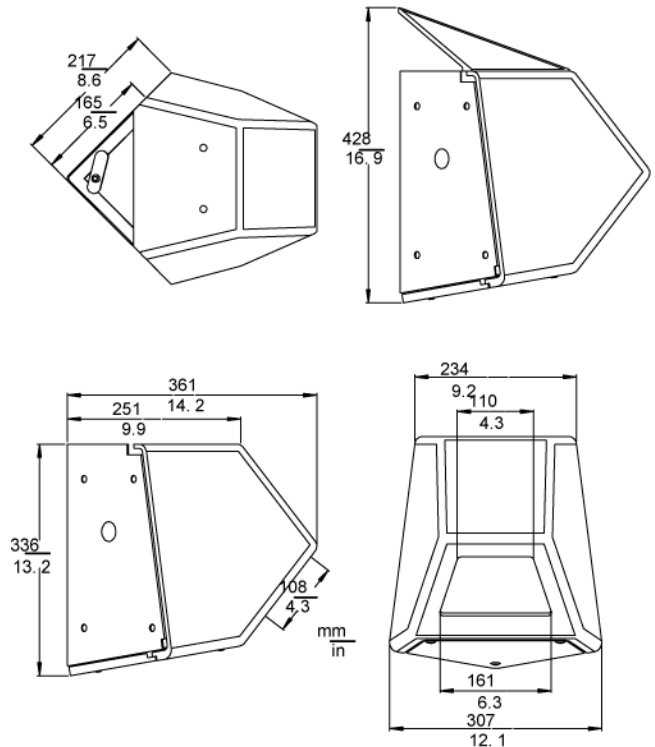
For maximum protection and durability, the light weight cast aluminum design of the LTC 9303 Series housing provides the strength of 10 gauge steel, with the superior strength-to-weight ratio of aluminum.

The viewing window is constructed of 9.5 mm (0.37 in) clear polycarbonate material, treated with a scratch resistant coating. A removable bottom panel provides access to the camera, and is secured using three tamper resistant screws. A special tool is provided for screw removal.

Attractively styled, these housings are furnished without a full top cover, and are designed to be corner-mounted flush with the ceiling. Adding the LTC 9313/00 top cover allows the housing to be mounted below the ceiling line. A key lock on the access panel is also available.

These housings will accept 1/4-inch, 1/3-inch, and 1/2-inch format CCD cameras with fixed format CS lenses.

Installation/Configuration Notes



Dimensional Outline

Parts Included

Quantity Component

1	LTC 9303 Series Indoor Housing
---	--------------------------------

Technical Specifications

Models

LTC 9303/00	Clear 9.5 mm (0.37 in) viewing window.
LTC 9303/01	Clear 9.5 mm (0.37 in) viewing window with key lock controlled access.
LTC 9303/02	Tinted 9.5 mm (0.37 in) viewing window.
LTC 9303/03	Clear 12.7 mm (0.50 in) viewing window.
LTC 9303/04	Tinted 9.5 mm (0.37 in) viewing window with key lock controlled access.
LTC 9303/05	Clear 12.7 mm (0.5 in) viewing window with key lock controlled access.

Mechanical

Maximum Camera/Lens Size	Housing accepts camera/lens combinations up to 267 L x 102 W x 76 H mm (10.5 x 4.0 x 3.0 in) when using 1/4-inch, 1/3-inch and 1/2-inch format CCD cameras. Dimensions include standard
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Connectors

Cable Entry	Wiring access through a PG 21 (3/4 inch) conduit knockout located on both sides of the rear of the housing. Cable entry also available through top of the housing.
Window	9.5 mm (0.37 in) thick polycarbonate treated with a scratch-resistant coating. Design allows for easy replacement.
Housing Mounting	Protected rear panel contains eight 10 mm (0.406 in) holes for easy installation.
Camera Mounting	Removable three piece fully adjustable mounting system.
Construction	6.3 mm (0.25 in) cast aluminum front cover mounted to a steel rear panel and assembled using high strength steel hardware. Access panel secured using three security screws.
Finish	Light gray
Dimensions	See Dimensional Outline
Weight	7.7 kg (17 lb)

Ordering Information

LTC 9303/00 Indoor Housing Max. security, corner mounting, clear 9.5 (0,37 inch) viewing window	LTC9303/00
LTC 9303/01 Indoor Housing Max. security, corner mounting, clear window with key lock	LTC9303/01
LTC 9303/04 Indoor Housing Max. Security, corner mounting, tinted 9.5 mm (0,37 inch) viewing window	LTC9303/04

Accessories

LTC 9313/00 Sloped Top Cover for LTC 9303 Series Housing	LTC9313/00
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LTC 9305 Series Indoor Housings



Features

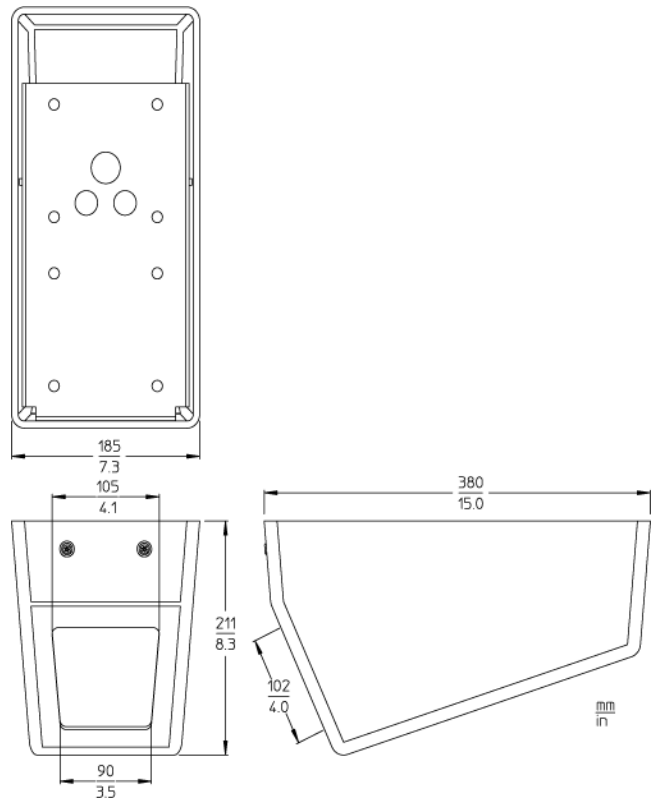
- ▶ **Rugged cast aluminum construction - equivalent to 10 gauge steel**
- ▶ **Ceiling or wall mounted Installation**
- ▶ **Scratch-resistant polycarbonate window, easily replaceable**
- ▶ **Adjustable camera mounting system**
- ▶ **Attractive styling**

The LTC 9305 Series are wall or ceiling mounted detention grade security housings designed for applications such as prisons, parking garages, and hospitals. These housings are ideal for applications requiring secure CCTV monitoring.

For maximum protection and durability, the lightweight cast aluminum design of the LTC 9305 Series housings provide the strength of 10 gauge steel with the superior strength-to-weight ratio of aluminum. The viewing window, constructed of 9.5 mm (0.37 in) clear polycarbonate material, treated with a scratch resistant coating, can be easily replaced. The removable cover provides access to the camera and is secured by a tamper-resistant screw. A special tool is provided for screw removal.

Attractively styled, these housings are designed to be mounted on the ceiling, on the wall horizontally, or on the wall vertically. A key lock on the access panel is available. These housings will accept all 1/4-inch, 1/3-inch, and 1/2-inch format CCD cameras with fixed format lenses.

Installation/Configuration Notes



Dimensional Outline

Technical Specifications

Models

LTC 9305/00	Clear 9.5 mm (0.37 in.) viewing window
LTC 9305/01	Key lock controlled access, 9.5 mm (0.37 in.) viewing window

Mechanical

Dimensions	See drawing
Color	Light gray
Weight	5.6 kg (12.3 lb)
Mounting	8 holes 10 mm (0.41 in.) in top
Cable entry	1 x 21 mm (3/4 in.) knockout in top 2 x 13.5 mm (1/2 in.) knockouts in top Open cable entry through top also possible
Camera mounting	Removable, 3-piece, fully adjustable system
Max camera/lens size (H x W x D)	76 x 76 x 300 mm (3 x 3 x 11.8 in.)
Window	9.5 mm (0.37 in.) thick scratch-resistant polycarbonate
Material	
top panel	high strength steel
cover	6.3 mm (0.25 in.) cast aluminum
Cover securement	2 security screws

Ordering Information**LTC 9305/00 Indoor Housing****LTC9305/00**Max. security, wall or ceiling mount, 9.5 mm
(0.37 inch) view window

LTC 9305/01 Indoor Housing**LTC9305/01**Max. security, wall or ceiling mount, 9.5 mm
(0.37 inch), view window, with key lock

LTC 9405 Series Compact Indoor Housings



Features

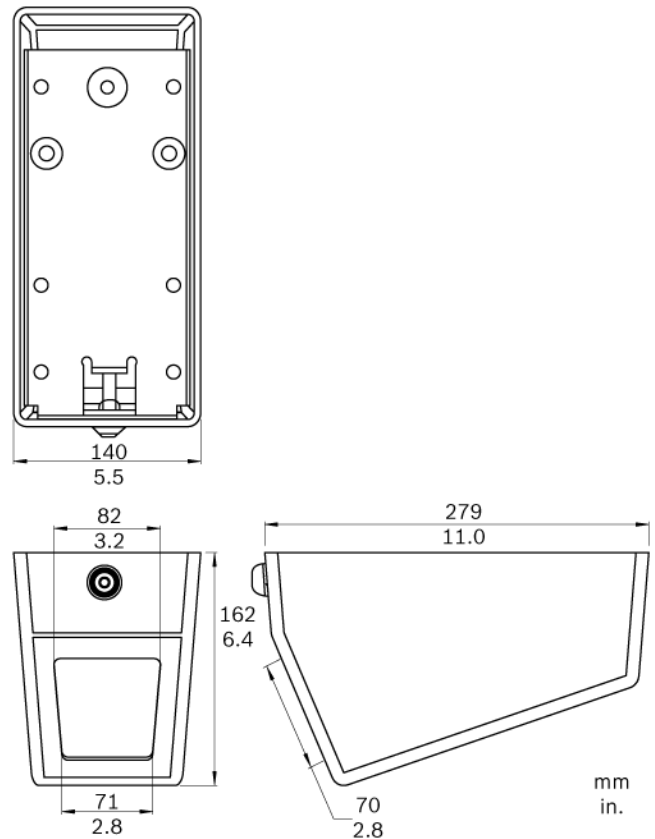
- ▶ **Rugged cast aluminum construction – equivalent to 10 gage Steel**
- ▶ **Ceiling or wall mount installation**
- ▶ **Scratch-resistant polycarbonate window**
- ▶ **Adjustable camera mounting system**
- ▶ **Compact design**

The LTC 9405 Series are compact wall or ceiling mounted detention grade security housings. Designed for applications such as prisons, parking garages, and hospitals, these housings are ideal for installations requiring secure CCTV monitoring.

For maximum protection and durability, the lightweight cast aluminum design of the LTC 9405 Series housings provides the strength of 10 gauge steel with the superior strength-to-weight ratio of aluminum. The viewing window is constructed of 9.5 mm (0.37 inch) clear polycarbonate material, treated with a scratch-resistant coating. A removable hinged cover, secured by a key lock, provides easy access to the camera.

If more security is required, the LTC 9405/05 model is available with a 12.7 mm (0.5 inch) clear viewing window. Attractively styled, these housings are designed to be mounted on a ceiling or on a wall, horizontally or vertically.

Installation/Configuration Notes



Dimensional Outline

Parts Included

Quantity	Component
1	LTC 9405 Series Compact Indoor Housing

Technical Specifications

Models

LTC 9405/00	Clear, 9.5 mm (0.37 in.) viewing window.
LTC 9405/01	Key lock controlled access. Clear, 9.5 mm (0.37 in.) viewing window.
LTC 9405/05	Key lock controlled access. Clear, 12.7 mm (0.5 in.) viewing window.

Mechanical

Maximum Camera/ Lens Size (L x W x H)	Accepts camera/lens combinations up to 190 x 68 x 68 mm (7.5 x 2.7 x 2.7 in.). Dimensions include standard connectors. A right angle BNC may be required for some cameras.
Cable Entry	Wiring access through one PG 21 (3/4 in.) and two PG 13.5 (1/2 in.) conduit knockouts located in the top of the housing. Open cable entry is also available through the top.
Window	Clear polycarbonate treated with a scratch-resistant coating. Design allows for easy replacement.
Housing Mounting	Protected top panel contains six 10 mm (0.4 in.) holes for easy installation.
Camera Mounting	Removable three piece fully adjustable mounting system.
Construction	5.8 mm (0.23 in.) cast aluminum cover mounted to a high strength steel top panel and assembled using high strength steel hardware
Finish	Light gray
Dimensions	See Dimensional Outline
Weight	2.6 kg (5.8 lb)

Ordering Information

LTC 9405/00 Compact Indoor Housing Max. security, wall or ceiling mount, 9.5 mm (0.37 inch) glass, view window	LTC9405/00
LTC 9405/01 Compact Indoor Housing Max. security, wall or ceiling mount, 9.4 mm (0.37 inch) glass, view window, with key lock	LTC9405/01
LTC 9405/05 Compact Indoor Housing Max. security, wall or ceiling mount, 12,7 mm (0.5 inch) glass, view window, with key lock	LTC9405/05

LTC 9488/00 Indoor Housing



Features

- ▶ For 1/4-inch, 1/3-inch & 1/2-inch CCD Cameras
- ▶ Feed-through Wiring Option
- ▶ Aluminum and Advanced Polymer Construction
- ▶ Easy Installation
- ▶ Full Camera Accessibility
- ▶ Available in Multiple Sizes

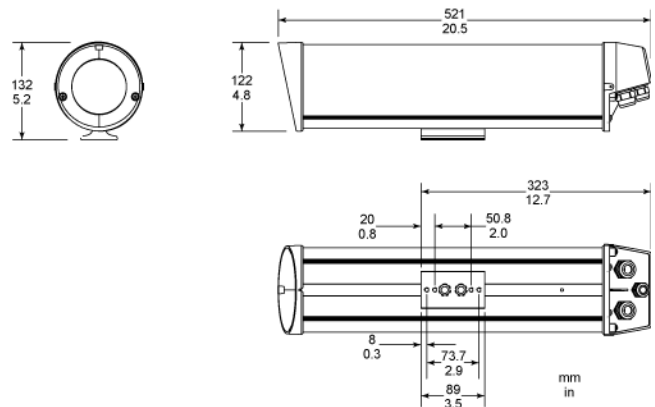
The LTC 9488 Series Housings are smartly styled housings for indoor use. These housings meet customers' demands for attractive housings that are both cost competitive and easy to install. They are available in multiple sizes to fit a wide range of cameras and lenses.

Functions

The design of these housings is unique. Removal of two captive screws is all that is necessary to slide off the cover and totally expose the camera and lens. This allows access to all camera and lens controls when the camera is in its mounted position. Power, video, and lens control cabling can be routed through liquid tight fittings in the bottom rear of the housing or can be routed through the mounting base. Feed-through mounts and J-mounts are available for these housings to completely hide the cabling.

The base of the housings permits mounting to pan/tilts, adjustable heads, and various wall mounts.

Installation/Configuration Notes



LTC 9488/00 Indoor Housing

Parts Included

Quantity	Component
1	LTC 9488/00 Indoor Housing

Technical Specifications

Electrical

Model No.	Preinstalled Heater or Heater/Blower	Volt / Power V/W	Camera Models with these Voltage Ratings
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Indoor Units

LTC 9488/00	-	-	24 VAC 115 VAC 230 VAC
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Mechanical

Maximum Camera and Lens:

LTC 9488/00 (WxHxL)	71 x 71 x 356 mm (2.8 x 2.8 x 14.0 in)
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Cable Entry

9488/00

Three (3) liquid tight rear fittings, two (2) of which accept cable diameters from 4.3 mm to 11.9 mm (0.17 in to 0.47 in) and one (1) that accepts cable diameters from 4.6 mm to 7.9 mm (0.18 in to 0.31 in). Two (2) bottom feed-through liquid tight fittings accept cable diameters from 4.6 mm to 7.9 mm (0.18 in to 0.31 in).

Window	3 mm (0.12 in) thick UV-stabilized polycarbonate.
Housing Mounting	Four (4) available 1/4-20 tapped holes. Only one set of two is required for mounting.
Camera Mounting	Removable camera bracket. Mounted with two screws.
Construction	Aluminum cover, aluminum base, aluminum mounting foot, polycarbonate faceplate, glass reinforced polycarbonate end caps, neoprene gasket, ethylene propylene seal, and all stainless steel hardware.
Finish	Dark mushroom
Dimensions	See drawings
Weight (approx.)	3.2 kg (7 lb)

Environmental

Salt Atmosphere	MIL-STD-810E, Method 509, Procedure 1.
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Enclosure Protection	IP65, Designed to meet NEMA-4
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Electromagnetic Compatibility

Safety	UL, cUL, CE
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Accessories

Sunshield	Provides protection from the direct rays of sun and promotes cooling to reduce internal housing temperatures.
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LTC 9088/01	For LTC 9488 Series housings
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LTC9080/00 Tamper Resistant Kit	Includes ten 10 screws and insertion tool to permit tamper resistance for five (5) housings.
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LTC9215/00 Mount	Feed-through mount attached to the foot of housing for HSG 9483, LTC 9480 Series & LTC 9488 Series housings.
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LTC 9215/00S Mount	Feed-through mount attached to the foot of housing for HSG 9483, LTC 9480 Series & LTC 9488 housings.
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LTC9219/01 J-mount	Feed-through J-mount allows housing to be mounted from ceiling.
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Suggested Applications:

LTC 9488/00

Camera Model**Lens**

LTC 0335	Fixed/Vari/ Zoom
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LTC 0355	Fixed/Vari/ Zoom
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LTC 0435	Fixed/Vari/ Zoom
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LTC 0455	Fixed/Vari Zoom
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Ordering Information**LTC 9488/00 Indoor Housing**

for camera/lens combination up to 356 mm
(14 in)

LTC9488/00

LTC 9348/00 Series Indoor Dome Housings



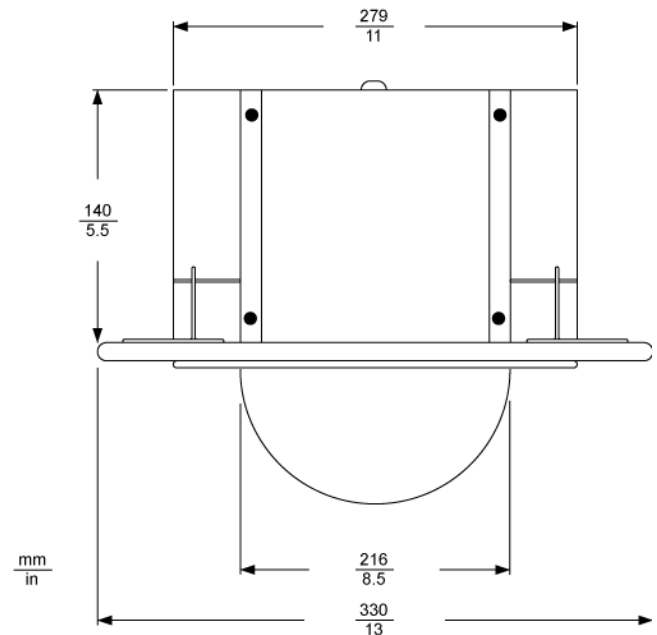
Features

- ▶ For fixed camera installations
- ▶ Plenum ceiling applications
- ▶ Adjustable viewing direction
- ▶ Tamper resistant and dustproof
- ▶ Concealed camera position
- ▶ Tinted lower dome
- ▶ Attractive design
- ▶ Easy installation

This attractive domed housing accommodates 1/2-inch and 1/3-inch solid-state cameras for surveillance in a variety of indoor CCTV applications. The LTC 9348/00 has a 216 mm (8.5 in) lower tinted dome, with an opaque black non-viewing window area and white decorative trim ring. The above-ceiling portion is manufactured from heavy gauge steel, making it ideal for use in plenum ceiling applications. These housings can be mounted in both sheetrock and standard drop ceilings.

The units contain conduit knockouts and support holes for easy installation and service. They come complete with mounting hardware and an adjustable camera mounting head for 360° adjustable viewing direction. These totally enclosed units are dustproof and tamper resistant.

Installation/Configuration Notes



Dimensional Outline

Parts Included

Quantity	Component
1	LTC 9348/00 Series Indoor Housing

Technical Specifications

Mechanical

Construction	The back box is constructed from 20 and 18 gauge steel. The lower capsule is formed from 0.125 in tinted cell cast acrylic with non-viewing window area opaque black and white trim ring. Light reduction due to the viewing area is only 1 to 1.5 f-stops.
Dimensions	See Dimensional Outline
Weight	3.1 kg (6.8 lb)
Maximum Camera/Lens (L x W x H)	216 x 89 x 71 mm (8.5 x 3.5 x 2.8 in)
Enclosure Mounting	Four (4) mounting flanges are provided in flange of dome (including toggle bolts).
Camera Mounting	Camera support bracket is adjustable forward and backward. Bracket is included with each unit.

Ordering Information

LTC 9348/00 Series Indoor Dome Housings	LTC9348/00
for cameras/lens to 216 mm (8.5 in), ceiling mount, tinted, metal backbox	

LTC 9312/00 and LTC 9412/00 Series Indoor Housings



Features

- ▶ 300 mm (12 in) dome
- ▶ 360° Adjustable viewing direction
- ▶ Suspended ceiling & pendant models
- ▶ Covert inner liner conceals camera position
- ▶ Multiple camera capacity with accessories
- ▶ Includes adjustable swivel camera mount

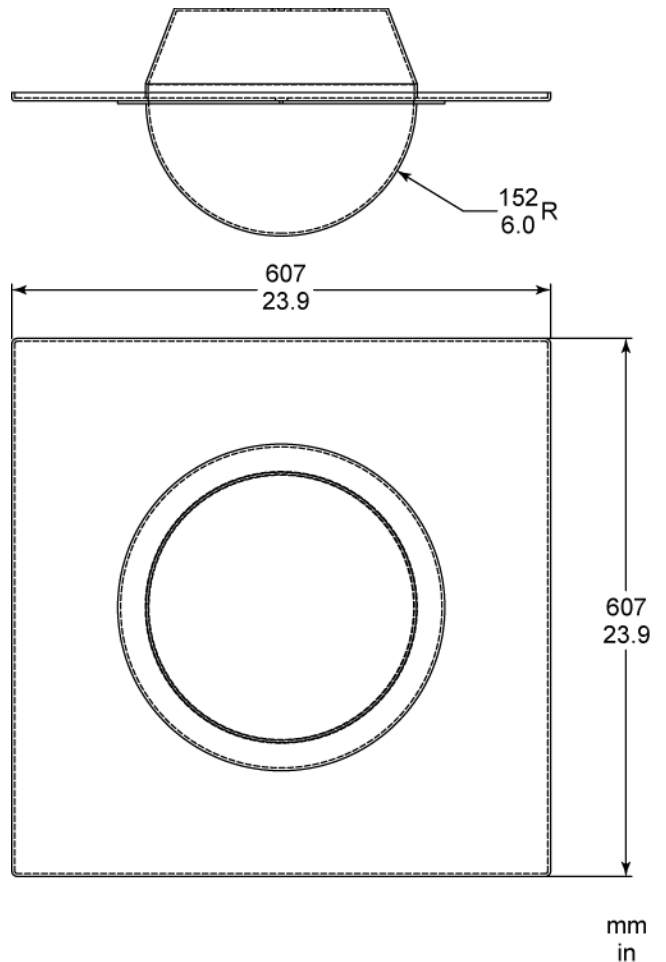
The Bosch LTC 9312/00 and LTC 9412/00 are indoor, discreet, domed housings designed for fixed cameras. The LTC 9312/00 is a flush mounted dome for use in a suspended ceiling.

The LTC 9412/00 is a pendant mounted dome which can be suspended using 1.2-inch conduit or equivalent tubing.

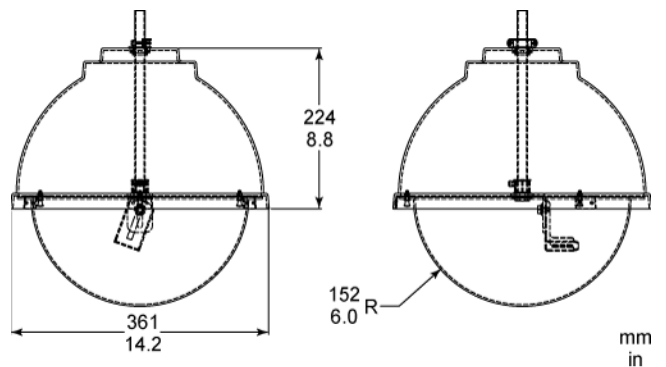
The domes allow 360° viewing, enabling the fixed camera to be mounted at any angle using the adjustable swivel head.

These units include a covert inner liner which hides the camera, thus concealing its position. As well, both the LTC 9312/00 and LTC 9412/00 can accommodate up to 2 cameras, providing additional viewing capabilities. These domes will accept 1/4-inch, 1/3-inch and 1/2-inch format CCD monochrome and color cameras.

Installation/Configuration Notes



Dimensional Outline



Dimensional Outline

Parts Included

Quant.	Component
1	LTC 9312/00 / LTC 9412/00 Series Indoor Housing

Technical Specifications

LTC 9312/00 Flush Mount

300 mm (12 in) diameter indoor flush mounted dome with fixed camera bracket, dust cover, inner liner, and tinted lower dome.

Mechanical

Camera/Lens Size: Maximum of 2 cameras, size 20.3 cm (8 in) length.

Cable Entry	Through opening located on side of dome.
F/stop Loss	1 to 1.5
Mounting	Mounts in suspended ceiling.
Construction/Finish	Acrylic dome on metal housing.
Weight	7.25 kg (16 lb)
Accessories	
FM2	For up to two cameras

LTC 9412/00 Pendant Mount

300 mm (12 in) diameter indoor pendant mounted dome with fixed camera bracket, inner liner, and tinted lower dome.

Mechanical

Camera/Lens Size	Maximum of 2 cameras, size 20.3 cm (8 in) length.
Cable Entry	Through 1/2-inch conduit knockout through top of housing.
F/stop Loss	1 to 1.5
Mounting	Pendant mounted
Construction/Finish	Acrylic dome on metal housing
Weight	5.4 kg (12 lb)
Accessories	
MCB4	For up to two cameras

Ordering Information

LTC 9412/00 Housings Indoor for camera/lens up to 300 mm (12-inch), pendant mount, tinted	LTC9412/00
Accessories	
FM1 Camera Mount long, mounts extra cameras in LTC 9312/00 Dome housings	FM1
FM2 Camera Mount short, mounts extra cameras in LTC 9312/00 Dome housings	FM2
TC9311PM3T Installation Tool for TC9311PM3, LTC 9213 & LTC 9225 pole mount adapters	TC9311PM3T

EXPB-3W-KIT Camera and IR Illuminator Wall-mount Kit



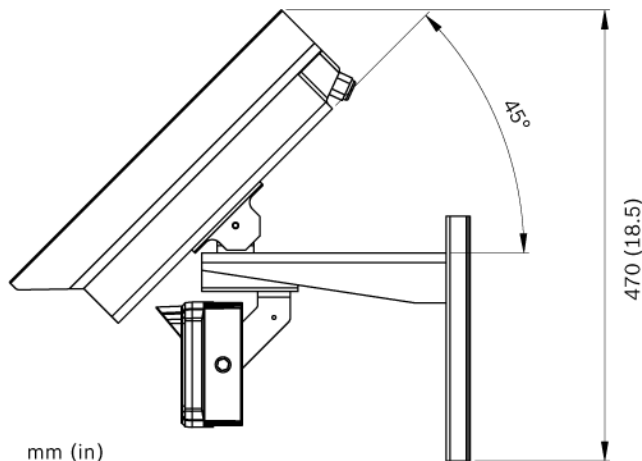
Features

- ▶ Pan/Tilt adjustable camera housing
- ▶ Thick cast aluminum construction
- ▶ Tough 4-bolt anchor

The EXPB-3W is a heavy-duty IR illuminator wall mount bracket kit complete with camera housing. It is designed for rugged outdoor applications. The thick cast aluminum construction is extremely durable and tough. Its versatile design means that it is compatible with AEGIS UFLED and AEGIS SuperLED Illuminators.

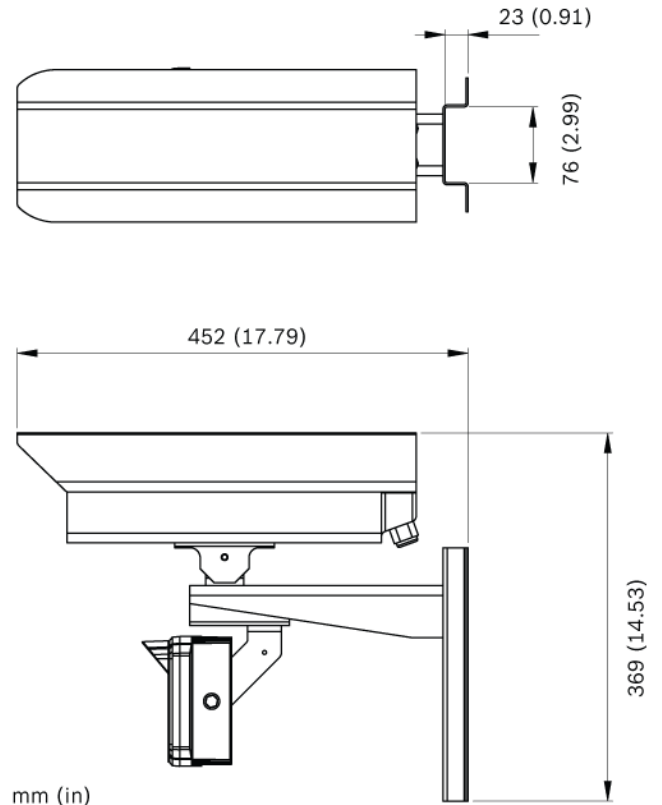
Installation/Configuration Notes

Dimensions

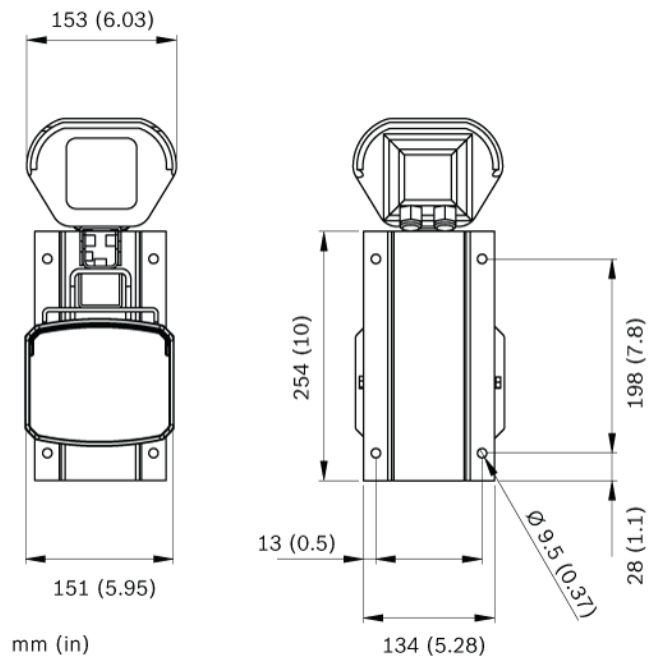


mm (in)

Camera housing tilted to maximum elevation.



mm (in)



mm (in)

(Illuminator is not included with the kit.)

Applications



Bracket with AEGIS UFLED mounted (illuminator is not included with bundle).



Bracket with AEGIS SuperLED mounted (illuminator is not included with bundle).

Technical Specifications

Construction	Cast aluminum
Finish	Black
Weight	2.25 kg (5.0 lb)

Ordering Information

EXPB-3W-KIT Camera and IR Illuminator	EXPB-3W-KIT
Wall-mount Kit	
Wall-mount kit including camera housing for IR Illuminators	

UHO Series Outdoor Camera Housing



Features

- ▶ Protects camera/lens combinations up to 262 mm (10.32 inch) length
- ▶ Hinged side opening for easy installation and camera setup
- ▶ IP66, NEMA-4X enclosure rating
- ▶ Strong aluminum construction
- ▶ Sunshield included
- ▶ Cable routing through base or rear of housing
- ▶ Tamper-resistant
- ▶ Continuous low power window defroster
- ▶ Self cleaning glass

The UHO series housings are smartly styled housings, for outdoor use. These housings are both cost-competitive and installer-friendly. Models are available for use with 24 VAC, 115 VAC, and 230 VAC cameras, to fit a wide range of applications.

Functions

Easy installation

The unique, hinged, side-opening design provides easy installation of all camera/lens combinations, and allows access to most camera and lens controls when the housing is mounted. Power, video, and lens control cabling can be routed through liquid-tight fittings in the bottom rear of the housing, or for even better cable management, via the feed-through entry holes in the base. Mounting holes in the base permit installation to a wide range of pan/tilts, adjustable heads, and various camera mount brackets.

Flexible

External 4-pin and BNC connectors for power and video, located in the rear end cap, are also available on 24 VAC and 230 VAC models. These aluminum-constructed housings are available with a factory-installed heater and blower. The heater maintains the internal temperature of the housing in cold temperature conditions as low as -40 °C (-40 °F). In combination with a permanent low-power window defroster and a continuous-duty blower, the unit minimizes fogging in high humidity locations, and extends the temperature limits. Sunshields are included on all outdoor models.

Dinion ready

All models support installation of Dinion style cameras with fixed focal, varifocal, or up to a 15x motorized zoom lens.

Secure

For increased security, the units come with tamper-resistant screws for the locking clasps to prevent illegitimate access to the housing contents.

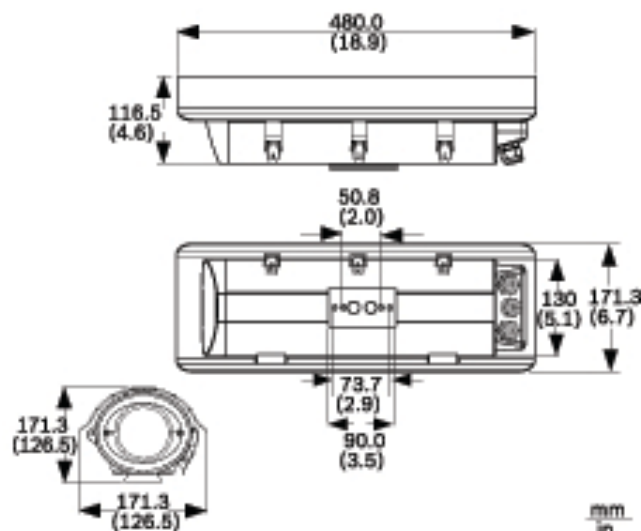
Rugged

With a sleek design that meets IP 66 and NEMA-4X enclosure standards, the UHO Series Housings are the optimal solution for protecting your video surveillance equipment from adverse elements.

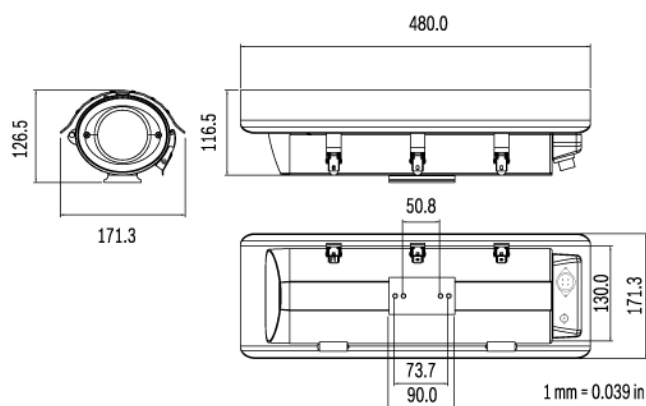
Certifications and Approvals

Region	Certification	
Europe	CE	UHO-HGS UHO-HGS-50x
Safety	acc. to EN 60950-1 (CE) acc. to UL 2044-1; CAN/CSA C 22.2 no. 1-98	
Immunity	acc. to EN 50130-4 (CE)	
Emission	acc. to EN 55022 class B (CE) acc. to EN 61000-3-2 (CE); EN 61000-3-3 (CE) acc. to FCC CFR 47 Part 15, Class B	

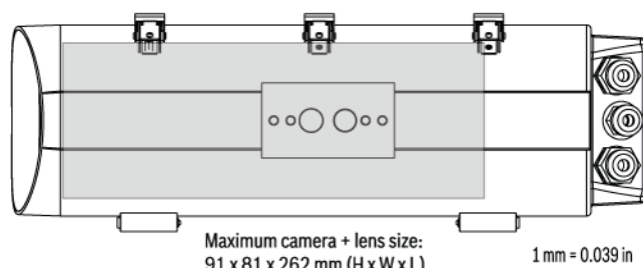
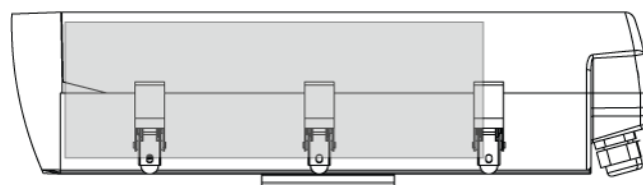
Installation/Configuration Notes



Dimensions in mm for UHO-HGS-10, UHO-HBGS-10, UHO-HGS-50, UHO-HBGS-50 and UHO-HBGS-60 housings outdoor units



Dimensions in mm for UHO-HBPS-10, UHO-HPS-50 and UHO-HBPS-50 housings outdoor units



Dimensions in mm for all models, maximum internal usable space available (based on camera/lens size)

Note Allowance is provided for wiring and connector space requirements

Technical Specifications

Electrical/Mechanical

Rear fitting	1x
cable diameter	4.0 to 7.0 mm (0.16 to 0.28 in)
models	UHO-HGS-10, UHO-HBGS-10, UHO-HGS-50, UHO-HBGS-50, UHO-HBGS-60
Rear fittings	2x
cable diameter	6.5 to 10.5 mm (0.26 to 0.42 in)
models	UHO-HGS-10, UHO-HBGS-10, UHO-HGS-50, UHO-HBGS-50, UHO-HBGS-60
Bottom feeds	2x
cable diameter	4.0 to 7.0 mm (0.16 to 0.28 in)
models	UHO-HGS-10, UHO-HBGS-10, UHO-HGS-50, UHO-HBGS-50, UHO-HBGS-60
Rear connector	1x
type	4-pin (power)
models	UHO-HBPS-10, UHO-HPS-50, UHO-HBPS-50
Rear connector	1x
type	BNC (video)
models	UHO-HBPS-10, UHO-HPS-50, UHO-HBPS-50
Window	3 mm (0.12 in) glass
Locking clasps	Tamper-resistant screws provided
Camera power ratings	10 model: 24 VAC, 50/60 Hz, 1.25 A 50 model: 230 VAC, 50 Hz, 0.25 A 60 model: 120 VAC, 60 Hz, 0.4 A
Camera mounting	Removable camera/lens tray, mounted with two screws
Max camera + lens size (H x W x L)	91 x 81 x 262 mm (3.6 x 3.2 x 10.3 in)
Construction	Aluminum casing, neoprene gaskets, all stainless steel hardware

Dimensions	See drawings
Weight	
UHO-HBG-10,	3.1 kg (6.8 lb)
UHO-HBG-50,	3.1 kg (6.8 lb)
UHO-HPS-50	3.1 kg (6.8 lb)
all others	3.2 kg (7.1 lb)
Mounting	2 x pair of tapped holes
thread	1/4-20
inner pair	50.8 mm (2.0 in) center spread
outer pair	73.7 mm (2.9 in) center spread
Color	Gray

Environmental

Operating temperature (with fixed lens)*	External: -40 °C to +50 °C (-40 °F to +122 °F)
	Internal: -20 °C to +55 °C (-4 °F to +131 °F)
Operating temperature (with zoom lens)*	External: -30 °C to +50 °C (-22 °F to +122 °F)
	Internal: -10 °C to +55 °C (+14 °F to +131 °F)
Enclosure protection	IP66, NEMA-4X

* With heater/blower accessories installed

Ordering Information

UHO-HGS-10 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 24 VAC, 50/60 Hz, heater, sunshield, feed- through cabling	UHO-HGS-10
UHO-HBGS-10 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 24 VAC, 50/60 Hz, heater, blower, sun- shield, feed-through cabling	UHO-HBGS-10
UHO-HBPS-10 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 24 VAC, 50/60 Hz, heater, blower, sun- shield, outside BNC connector and outside power connector	UHO-HBPS-10
UHO-HGS-50 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 230 VAC, 50/60 Hz, heater, sunshield, feed- through cabling	UHO-HGS-50
UHO-HBGS-50 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 230 VAC, 50/60 Hz, heater, blower, sun- shield, feed-through cabling	UHO-HBGS-50
UHO-HPS-50 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 230 VAC, 50/60 Hz, heater, sunshield, out- side BNC connector and outside power con- nector	UHO-HPS-50
UHO-HBPS-50 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 230 VAC, 50/60 Hz, heater, blower, sun- shield, outside BNC connector and outside power connector	UHO-HBPS-50

Ordering Information

UHO-HBGS-60 Outdoor Housing for camera/lens up to 262 mm (10.3 in.), 120 VAC, 60 Hz, heater, blower, sunshield, feed-through cabling	UHO-HBGS-60
Accessories	
LTC 9215/00 Mount Wall bracket for LTC/HSG 948x, HSG9583 and UHI/UHO housings	LTC9215/00
HAC-TAMP01 Tamper Switch Tamper switch kit for HSG and UHI/UHO ser- ies enclosures	HAC-TAMP01

LTC 9480 and LTC 9488 Series Housings Outdoor



Features

- ▶ For 1/4-inch, 1/3-inch and 1/2-inch CCD Cameras
- ▶ Feed-through Wiring Option
- ▶ Aluminum and Advanced Polymer Construction
- ▶ Easy Installation
- ▶ Full Camera Accessibility
- ▶ Available in Multiple Sizes
- ▶ Multiple Accessories Available

The LTC 948x Series Housings are smartly styled housings for outdoor use. These housings meet customers' demands for attractive housings that are both cost competitive and easy to install. They are available in multiple sizes to fit a wide range of cameras and lenses.

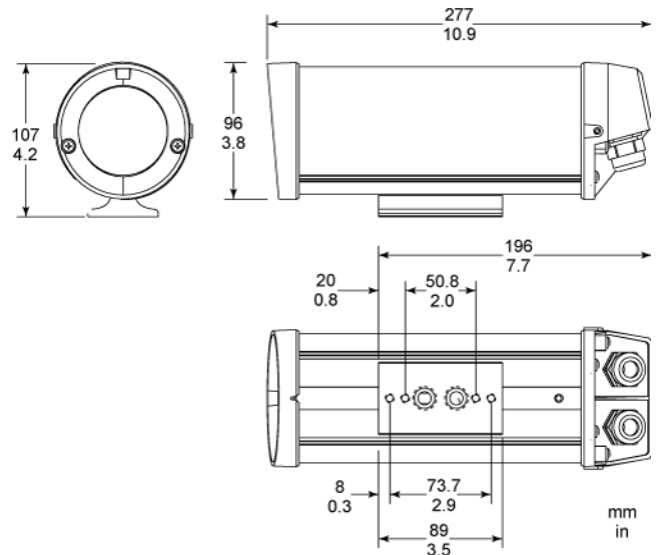
Functions

The design of these housings is unique. Removal of two captive screws is all that is necessary to slide off the cover and totally expose the camera and lens. This allows access to all camera and lens controls when the camera is in its mounted position. Power, video, and lens control cabling can be routed through liquid tight fittings in the bottom rear of the housing or can be routed through the mounting base. Feed-through mounts and J-mounts are available for these housings to completely hide the cabling.

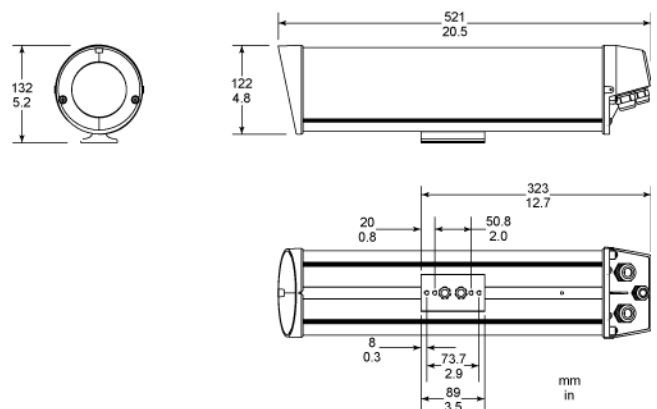
The base of the housings permits mounting to pan/tilts, adjustable heads, and various wall mounts.

These sturdily constructed housings are available with a preinstalled heater or a preinstalled heater and blower. The heater maintains the internal temperature of the housing in cold temperature conditions and the heater/blower combination minimizes fogging in high humidity locations and extends the temperature limits.

Installation/Configuration Notes



LTC 9480 Series



LTC 9488 Series

Technical Specifications

Electrical

Model No.	Preinstalled Heater or Heater/Blower ¹⁾	Volt / Power	Camera Models with these Voltage Ratings
Outdoor Units			
LTC 9480/xx ²⁾	-	-	24 VAC
LTC 9488/xx ²⁾	-	-	24 VAC 115 VAC 230 VAC
Outdoor Units			
LTC 9480/20 ²⁾	Heater	24/15 V/W	24 VAC
LTC 9488/20	Heater	24/40 V/W	24 VAC
LTC 9488/21	Heater/Blower	24/42 V/W	24 VAC
LTC 9488/50	Heater	230/40 V/W	230 VAC
LTC 9488/60	Heater	115/40 V/W	115 VAC
LTC 9488/61	Heater/Blower	115/45 V/W	115 VAC

1. The heaters and blowers for all models operate at 50/60 Hz.

2. Available with wall-mount; add "MT" suffix.

Mechanical

Maximum Camera and Lens (W x H x L):

LTC 9480/20	68 x 58 x 197 mm (2.68 x 2.6 x 7.75 in.) ¹⁾
LTC 9488/20	71 x 71 x 356 mm (2.8 x 2.8 x 14.0 in.) ¹⁾
LTC 9488/50	71 x 71 x 356 mm (2.8 x 2.8 x 14.0 in.) ¹⁾
LTC 9488/60	71 x 71 x 356 mm (2.8 x 2.8 x 14.0 in.) ¹⁾
LTC 9488/21	71 x 71 x 318 mm (2.8 x 2.8 x 12.5 in.) ²⁾
LTC 9488/61	71 x 71 x 318 mm (2.8 x 2.8 x 12.5 in.) ²⁾

1. With Heater

2. With Heater and Blower

Cable Entry

LTC 9480 Series Outdoor Housing

Two (2) liquid tight rear fittings accept cable diameters from 4.3 mm to 11.9 mm (0.17 in. to 0.47 in.). Two (2) bottom feed-through liquid tight fittings accept cable diameters from 4.6 mm to 7.9 mm (0.18 in. to 0.31 in.).

LTC 9488 Series Outdoor Housing

Three (3) liquid tight rear fittings, two (2) of which accept cable diameters from 4.3 mm to 11.9 mm (0.17 in. to 0.47 in.) and one (1) that accepts cable diameters from 4.6 mm to 7.9 mm (0.18 in. to 0.31 in.). Two (2) bottom feed-through liquid tight fittings accept cable diameters from 4.6 mm to 7.9 mm (0.18 in. to 0.31 in.).

Window	3 mm (0.12 in.) thick UV-stabilized polycarbonate.
Housing Mounting	Four (4) available 1/4-20 tapped holes. Only one set of two is required for mounting.
Camera Mounting	Removable camera bracket. Mounted with two screws.
Construction	Aluminum cover, aluminum base, aluminum mounting foot, polycarbonate faceplate, glass reinforced polycarbonate end caps, neoprene gasket, ethylene propylene seal, and all stainless steel hardware.
Finish	Dark mushroom.

Cable Entry

Dimensions	See drawings.
Weight (approx.)	LTC 9480 Series: 1.4 kg (3 lb) LTC 9488 Series: 3.2 kg (7 lb)

Environmental

Temperature At external temperature of -40 °C to 50 °C (-40 °F to 122 °F), maintains internal temperatures between -20 °C and 55 °C (-4 °F to 131 °F) with heater/blower.

Salt Atmosphere	MIL-STD-810E, Method 509, Procedure 1.
Enclosure Protection	IP65, Designed to meet NEMA- 4

Electromagnetic Compatibility

Safety	UL, cUL, CE
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Accessories

Sunshield Provides protection from the direct rays of sun and promotes cooling to reduce internal housing temperatures. Strongly recommended for housing that is to be used outdoors.

LTC 9083/01S	For LTC 9480 Series housings
LTC 9088/01	For LTC 9488 Series housings
LTC 9080/00 Tamper Resistant Kit	Includes ten 10 screws and insertion tool to permit tamper resistance for five (5) housings.
LTC9215/00 Mount	Feed-through mount attached to the foot of housing for LTC 9483, LTC 9484 and LTC 9488 Series housings.
LTC 9215/00S Mount	Feed-through mount attached to the foot of housing for LTC 9480 Series housings.
LTC 9219/01 J-mount	Feed-through J-mount allows housing to be mounted from ceiling.
LTC 9480/20 HTR Heater	15 W heater for LTC 9480/00.

Suggested Applications:

	LTC 9480	LTC 9488
Camera Model	Lens	Lens
LTC 0335	Fixed/Vari	Fixed/Vari/ Zoom
LTC 0355	Fixed/Vari	Fixed/Vari/ Zoom
LTC 0435	Fixed/Vari	Fixed/Vari/ Zoom
LTC 0455	Fixed/Vari	Fixed/Vari Zoom

Ordering Information

LTC 9480/20 Outdoor Housing for camera/lens to 7-inch, 3-in dia, 24 VAC, 50/60 Hz, heater	LTC9480/20
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LTC 9488/20 Outdoor Housing for camera/lens to 14-inch, 24 VAC, 50/60 Hz, heater	LTC9488/20
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LTC 9488/21 Outdoor Housing for camera/lens to 13-inch, 24 VAC, 50/60 Hz, heater, blower	LTC9488/21
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LTC 9488/50 Outdoor Housing for camera/lens to 14-inch, 230 VAC, 50 Hz, heater	LTC9488/50
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Accessories

LTC 9219/01 Feed-through J-Mount for 15-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, light gray finish	LTC 9219/01
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LTC 9215/00 Wall Bracket for 12-inch, 9 kg (20 lb) max load, for LTC 9380 and LTC 948x series housings, feed-through version, light gray finish	LTC 9215/00
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LTC 9215/00S Short Wall Bracket for 7-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, feed-through version, light gray finish	LTC 9215/00S
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LTC 9083/01S Sunshield for LTC 9480 series housings	LTC9083/01S
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LTC 9088/01 Sunshield for LTC 9488 series housings	LTC9088/01
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LTC 9080/00 Tamper Kit for LTC 9480 series housings, up to 5 hous- ings	LTC9080/00
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LTC 9384 Series Housings Outdoor

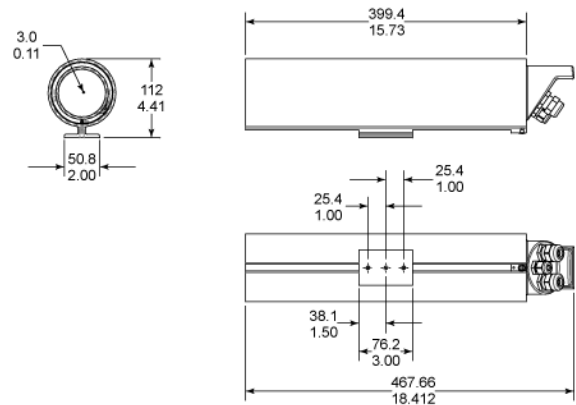


Features

- ▶ For 1/3-inch or 1/2-inch format CCD cameras
- ▶ All aluminum construction
- ▶ IP68, meets NEMA-6P
- ▶ Built-in handle for easy installation
- ▶ Excellent protection against dust & water
- ▶ Built-in window heater/defogger
- ▶ Accessories available

The LTC 9384 Series of environmental housings are attractive aluminum enclosures designed for outdoor CCD camera installations. These housings are constructed of extruded aluminum, and include a one-piece camera/lens mounting cradle with front- and rear-end caps. The front-end cap contains the glass viewing window with an integral heater design that minimizes fogging of the window in high humidity areas, or freezing under cold temperature conditions. The aluminum rear-end cap contains three liquid-tight fittings, which permit pass-through of video coax, AC power, and lens control wiring. The permanent base permits mounting to pan/tilts, adjustable heads, and various wall-mounts, and the built-in handle on the back of the housing allows quick installation and service.

Installation/Configuration Notes



Dimensional Outline LTC 9384 Series

Parts Included

Quantity	Component
1	LTC 9384 Series Outdoor Housings

Technical Specifications

Electrical

Power Transformer¹⁾

Model No.	Rated Input	Voltage Range	Voltage Output	Nominal Power ²⁾
LTC 9384/60	115 VAC 50/60 Hz	108 to 132 VAC	24 VAC 50/60 Hz	30 W
LTC 9384/20	24 VAC 50/60 Hz	21.6 to 26.4 VAC	24 VAC 50/60 Hz	30 W
LTC 9384/50	230 VAC 50/60 Hz	207 to 253 VAC	24 VAC 50/60 Hz	30 W
LTC 9384/20NT	24 VAC 50/60 Hz	21.6 to 26.4 VAC	—	30 W

1) The power transformers included with these housings are used to provide power to the heater and can be used to provide isolated camera power.

2) Heater requires 30 watts.

Mechanical**Maximum Camera/Lens Size**

LTC 9384/xx Accepts cameras up to 67 W x 59 H mm (2.6 x 2.3 in), lenses up to 70 W x 70 H mm (2.75 x 2.75 in), and camera/lens combinations up to 292 mm (11.5 in).

LTC 9384/20NT Accepts cameras up to 67 W x 59 H mm (2.6 x 2.3 in), lenses up to 70 W x 70 H mm (2.75 x 2.75 in), and camera/lens combinations up to 355 mm (14.0 in).

Cable Entry Three (3) liquid-tight fittings. Accepts the following cable diameters: one (1) fitting 2.3 mm to 6.4 mm (0.09 in to 0.25 in), two (2) fittings 3.8 mm to 10 mm (0.15 in to 0.39 in).

Window 3 mm (0.118 in) thick glass. Includes thermostatically-controlled window heater/defogger.

Housing Mounting Three (3) 1/4-20 tapped holes.

Camera Mounting Removable cradle assembly with hole pattern for mounting camera/lens assembly. Cradle may be rotated through 360°.

Construction Extruded aluminum housing, aluminum rear-end cap, aluminum front cap with glass faceplate, and aluminum cradle.

Finish Dark Mushroom

Dimensions See drawing

Weights

LTC 9384/xx 2.5 kg (5.6 lb)

LTC 9384/20NT 2.0 kg (4.4 lb)

Environmental**Temperature**

External ambient temperatures of 40 °C to 50 °C (–40 °F to 122 °F)

maintains internal temperatures of –20 °C to 55 °C (–4 °F to 131 °F).

Salt Atmosphere MIL-STD-810E, Method 509, Procedure

Enclosure Protection IP68

Electromagnetic Compatibility EMC Requirements

Immunity 89/336/EEC, EN50082-1

Emission 89/336/EEC, EN50081-1 Class B

Safety

CE LVD Requirements: 73/23/EEC; EN60065

UL UL2044

cUL CSA 22.2, No.1

Accessories

LTC 9384/00 Sunshield Provides protection from the direct rays of the sun and promotes cooling to reduce internal housing temperatures.

LTC 9380/02 Tamper Resistant Kit Includes screws and insertion tool to permit tamper resistance for one (1) housing.

Ordering Information

LTC 9384/50 Outdoor Housing LTC9384/50
NEMA-4, 3-inch diameter and camera / lens up to 292 mm (11.5 inch), 24 VAC, 50 Hz

Accessories

LTC 9384/00 Sunshield LTC9384/00

LTC 9380/02 Tamper Resistant Kit LTC9380/02

LTC 9381/00 Conversion Kit LTC9381/00
NPT to PG

LTC 9385 Series Housings Outdoor

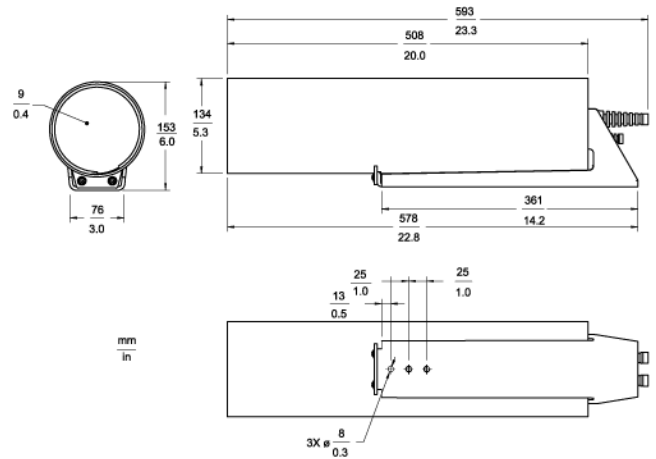


Features

- ▶ For 1/3-inch, 1/2-inch, or 2/3-inch format CCD cameras
- ▶ All aluminum construction
- ▶ Easy installation
- ▶ Removable cover
- ▶ Built-in window heater/defogger
- ▶ Accessories available

The LTC 9385 Series of medium-sized environmental housings are attractive aluminum enclosures designed for outdoor CCD camera installations. These housings are constructed of an extruded aluminum cover and a fabricated aluminum frame. The unique design allows adjustments to be made to the camera in its mounted position, once the cover is removed. The cover contains a polycarbonate window that is UV stabilized. An internally mounted thermostatically controlled heater is standard. The heater design minimizes fogging of the window in high humidity areas, or freezing under cold temperature conditions. The rear of the housing contains three liquid-tight fittings which permit pass-through of video coax, AC power, and lens control wiring. The housing is sealed with O-rings. The mounting base assembly permits mounting to pan/tilts, adjustable heads, and various wall-mounts. A unique feature of this housing is an internal rail assembly that rotates independently of the mounting base assembly, and allows the camera to be mounted at any angle.

Installation/Configuration Notes



Dimensional Outline LTC 9385 Series

Parts Included

Quantity Component

1	LTC 9385 Series Outdoor Housings
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Technical Specifications

Electrical

Model No.	Rated Input	Voltage Range	Nominal Power ¹⁾
LTC 9385/60	115 VAC 50/60 Hz	108 to 132 VAC	50 W
LTC 9385/20	24 VAC 50/60 Hz	21.6 to 26.4 VAC	50 W
LTC 9385/50	230 VAC 50/60 Hz	207 to 253 VAC	50 W

Electrical Connections

Three position terminal block for supply line power. LTC 9385/60 and LTC 9385/50 models have inline receptacles for camera power connections.

Heater-Defogger

Standard 40 Watt thermostatically controlled heater/defogger

1) Heater requires 40 watts.

Mechanical

Maximum Camera/Lens Size Accepts cameras up to 102 W x 71 H mm (4.0 x 2.8 in), lenses up to 102 W x 92 H mm (4.0 x 3.6 in), and camera/lens combinations up to 345 Lmm (13.6 in.).

Cable Entry Two (2), 1/2-in NPT and one (1) 3/8-in NPT tapped holes. Three (3) liquid-tight fittings are provided preinstalled. Accepts the following cable diameters: 3/8-in NPT fitting, 4.6 mm to 7.9 mm (0.181 in to 0.312 in); 1/2-in NPT fittings, 4.3 mm to 11.9 mm (0.170 in to 0.470 in).

Window 9.5 mm (0.375 in) polycarbonate treated with a UV light resistant coating. Viewing area: 127 mm (5 in) diameter.

Housing Mounting Three (3), 8 mm (0.312 in) clearance holes in base. Mounting base assembly may be rotated through 360°.

Camera Mounting Slotted internal rail assembly, which may be rotated through 360°. All camera/lens mounting hardware is provided.

Construction Extruded aluminum cover, fabricated aluminum frame, and polycarbonate window.

Finish Dark mushroom

Dimensions (L x W x H) See Dimensional Outline 591 x 134 x 153 mm (23.3 x 5.3 x 6.0 in)

Weight 3.7 kg (8.2 lb)

Environmental

Temperature

External ambient temperatures of -30°C to +50°C (-22°F to +122°F)

Maintains internal temperatures of -20°C to +55°C (-4°F to +131°F)

Salt Atmosphere MIL-STD-810E, Method 509, Procedure I.

Enclosure Protection Designed to NEMA-4, IP65, Enclosure Type 4

Electromagnetic Compatibility EMC Requirements

Immunity 89/336/EEC, EN50082-1

Emission 89/336/EEC, EN50081-1 Class B

Safety

CE LVD Requirements: 73/23/EEC; EN60065

UL UL 1409

cUL CSA 22.2, No. 1

Accessories

LTC 9385/00 Sunshield Provides protection from the direct rays of the sun and promotes cooling to reduce internal housing temperatures.

LTC 9380/01 Tamper Resistant Kit Includes screws and insertion tool to permit tamper resistance for up to five (5) housings.

Ordering Information

LTC 9385/50 Outdoor Housing LTC9385/50
for camera/lens up to 345 mm (13.6 inch),
230 VAC, 50 Hz, heater

Accessories

LTC 9385/00 Sunshield LTC9385/00

LTC 9381/01 Conversion Kit LTC9381/01
NPT to PG

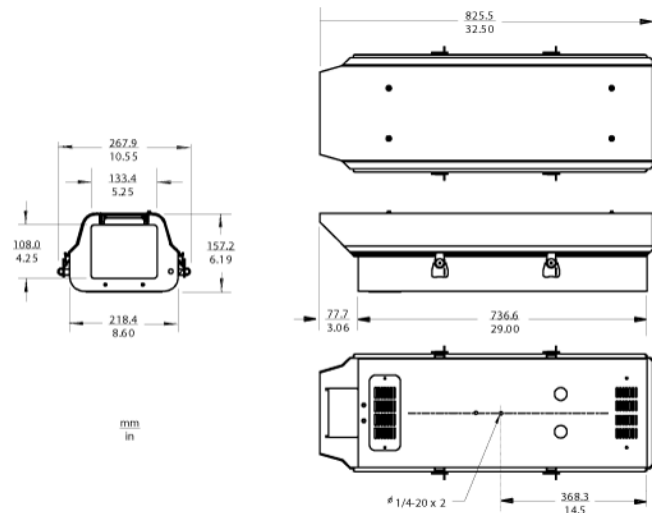
LTC 9380/00 Tamper Kit LTC9380/00
For LTC 9385 series housings, up to 10
housings

LTC 9380/01 Tamper Kit LTC9380/01
for LTC 9385 series housings, up to 5 hous-
ings

TC9346A Series Housings Indoor/Outdoor



Installation/Configuration Notes



Dimensional Outline TC9346A Series Housings Outdoor

Features

- ▶ For Cameras With up to 20x Zoom Lenses
- ▶ All Aluminum Construction
- ▶ Easy Installation
- ▶ Built-in Elevation Block
- ▶ Gas Spring-assisted Forward Opening Lid
- ▶ Accessories Available

The TC9346A Series Environmental Housings are constructed of aluminum, and designed to accommodate large format CCD cameras with up to 20x zoom lenses.

The housing opens from the rear by releasing side mounted latches, which may be secured with a padlock. Opening is assisted by a unique gas spring that securely holds the lid when opened fully. The forward opening lid on these units allows maximum accessibility during installation and camera/lens adjustments. A unique camera sled with a built-in elevation block is provided. The block is removable and can be inverted depending on the camera/lens combination utilized.

The TC9346A Series Housings are available with a full complement of factory and field installed accessories. With heater and blower installed, these housings provide enclosure protection for camera/lens assemblies in ambient temperature range of -23°C to 49°C (-10°F to 120°F).

Technical Specifications

Electrical

TC9346A

TC9346A-1	Includes Heater/Blower, 120 VAC, 60 Hz
TC9346A-2	Includes Heater/Blower, 24 VAC, 60 Hz
TC9346A-3	Includes Heater/Blower, 230 VAC, 60 Hz

Mechanical

Max Camera/Lens Size	139.7 x 190.5 x 711.2 mm (5.5 x 7.5 x 28 in)
	blower kit reduces length by 165.1 mm (6.5 in)
Cable Entry	Two glands on bottom of enclosure
Window	6.35 mm (0.25 in) glass; 107.9 x 133.3 mm (4.25 x 5.25 in)
Latches	Four stainless steel side-mounted latches; accepts padlock for security
Housing Mounting	Two (2) 1/4-20 tapped holes
Camera Mounting	Removable camera sled with built-in elevation block
Construction	Aluminum
Finish	Gray polyester powder coat
Dimensions	See Dimensional Outline
Weight	7.24 kg (16 lb) without heater/blower 8.15 kg (18 lb) with heater/blower

Environmental

Ambient Temperature	-23°C to 49°C (-10°F to 120°F)
Enclosure Protection	Meets NEMA-3R Standards
Product Safety	Complies with CE Regulations, UL, CSA Standards

Ordering Information

TC9346A Outdoor Housing Housing environmental heater/blower	TC9346A
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Accessories

HK57-1 Heater Assembly for TC9346A, requires O/I-PCB, 120 VAC, 50/60 Hz, 90 W	HK57-1
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HK57-2 Heater Assembly for TC9346A, requires O/I-PCB, 24 VAC, 50/60 Hz, 50 W	HK57-2
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BK57-1 Blower Assembly for TC9346A, requires O/I-PCB, 120 VAC, 60 Hz, 15 W	BK57-1
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BK57-2 Blower Assembly for TC9346A requires O/I-PCB, 24 VAC, 50/60 Hz, 10 W	BK57-2
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WW5729-1 Window Wiper Kit 120 VAC, 60 Hz, 15 W	WW5729-1
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WW5729-2 Window Wiper Kit 24 VAC, 50/60 Hz, 15 W	WW5729-2
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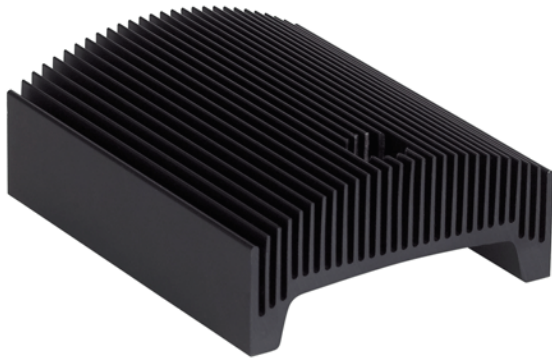
WD57-1 Window Defroster and Defogger 120 VAC, 60 Hz, 30 W	WD57-1
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WD57-2 Window Defroster and Defogger 24 VAC, 50/60 Hz, 30 W	WD57-2
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SS5729 Sunshield for TC9346A	SS5729
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T157 Low Temperature Package	T157
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HAC-IPCCC Camera Cooling Case



Features

- ▶ **Increases the ambient temperature range of housed Dinion IP cameras**
- ▶ **Works inside Bosch outdoor housings**
- ▶ **6.5 °C (12 °F) increase in the camera's operating temperature range (with optional blower installed)**
- ▶ **Easy installation**
- ▶ **Black lightweight aluminum**

Installing this unit allows a Dinion IP camera to work at a higher ambient temperature, when installed inside a Bosch outdoor housing unit with the optional blower also installed.

System Overview

This unit can only be used in combination with an HSG/UHO housing unit that has the optional blower installed.

Functions

The HAC-IPCCC mounts easily on top of a Dinion IP camera, and reduces the operating temperature of the camera (in combination with a Bosch outdoor housing unit with optional blower installed) up to 6.5 °C (12 °F). With an HAC-IPCCC installed, the temperature inside the housing can rise to a maximum of +46.5 °C (+115.7 °F). The maximum temperature inside the housing without an HAC-IPCCC is +40 °C (+104 °F).

Parts Included

Quantity	Components
1	HAC-IPCCC Camera Cooling Case
1	Spring washer and screw

Technical Specifications

Mechanical

Dimensions (H x W x D)	93 x 72.8 x 33.4 mm (3.66 x 2.87 x 1.3 in)
Weight	0.2 kg (0.75 lb)
Color	Black

Ordering Information

HAC-IPCCC Camera Cooling Case

For use with Dinion IP cameras in combination with HSG and UHO Series housings equipped with an optional blower

HAC-IPCCC

TC9200 Series Indoor Camera Mounts



Features

- ▶ **Sturdy Construction**
- ▶ **Attractive Appearance**
- ▶ **Versatile Design**
- ▶ **Adjustable**
- ▶ **Wide Selection of Styles**
- ▶ **Lightweight**

The TC9200 Series Indoor Camera Mounts can be used with CCD cameras with fixed and varifocal lenses. These sturdy, attractive mounts have fully adjustable mount heads and standard 1/4-20 camera mounting bolts. Maximum load capability ranges from 2 kg (4.4 lb) to 10 kg (22 lb). These versatile models can be used as pedestal, wall, or ceiling mounts and are well suited for use with CCD cameras.

Functions

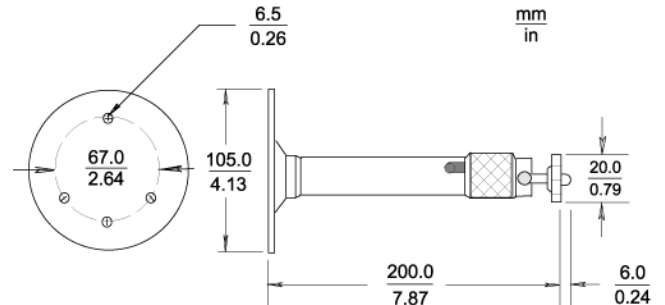
Model TC9208 is an economical 200 mm (8 in) general purpose mount for loads of up to 4 kg (8.8 lb). It has an aluminum finish and an adjustable sleeve ball mounting clamp for camera position adjustments.

The TC9202 model is an extendible wall mount with a range of length from 244 mm to 414 mm (9.6 in to 16.3 in). It can accommodate loads of up to 10 kg (22 lb) in both the short and the fully extended configurations and features a quick release screw head for ease of camera positioning.

The TC9210U indoor mount is configured for mounting cameras in indoor applications. It accommodates loads of up to 4.5 kg (10 lb) and is constructed of aluminum and steel, providing extremely rigid camera mounting.

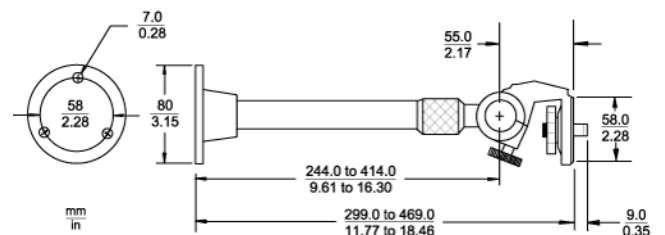
Featuring threaded extensions, this unit can be configured to three different lengths and is easily installed with the included mounting hardware. This unit can be used with many model CCD cameras.

Installation/Configuration Notes



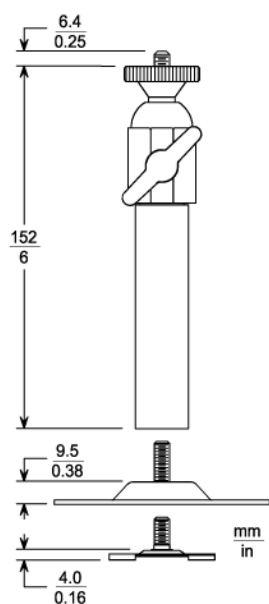
TC9208 Indoor Camera Mount

Maximum Load	4 kg (8.8 lb)
Mounting Head	Adjustable 360° pan, 90° tilt
Mounting Bolt	Standard 1/4-20
Finish	Aluminum
Weight	230 g (0.44 lb)



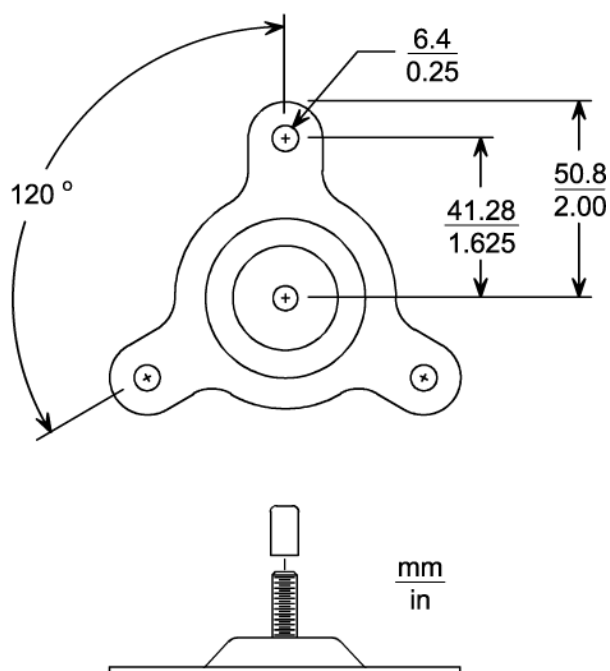
TC9202 Indoor Camera Mount

Maximum Load	10 kg (22 lb)
Mounting Head	Adjustable 360° pan, 90° tilt
Mounting Bolt	Standard 1/4-20
Finish	Aluminum and black
Weight	510 g (1.1 lb)

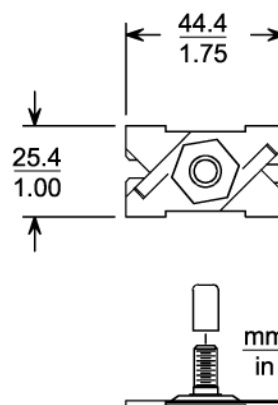


TC9210U Indoor Camera Mount

Maximum Load	4.5 kg (10 lb)
Mounting Head	Adjustable 360° pan, 180° tilt
Finish	Off-white semi-gloss acrylic
Weight:	
With Wall/Ceiling Flange	291 g (0.64 lb)
With T-Bar Clip	245 g (0.54 lb)



Wall/Ceiling Mount Flange, Included with TC9210U Solid Wall/Ceiling Mount



T-Bar Ceiling Clip

Included with TC9210U Solid Wall/Ceiling Mount.

Ordering Information

TC9208 Indoor Camera Mount	TC9208
general purpose mount, for 8-inch, 4 kg (8.8 lb) max load, aluminum finish	
TC9202 Indoor Camera Mount	TC9202
extendible wall mount, for 9.6-inch to 16.3-inch, 10 kg (22 lb) max load, aluminium/black finish	
TC9210U Indoor Camera Mount	TC9210U
universal wall/ceiling grid, for 6-inch, 4.5 kg (10 lb) max load, off-white finish, incl. T-Bar ceiling clip and wall/ceiling mount flange	

LTC 9210, LTC 9212, LTC 9213, and LTC 9223 Indoor/Outdoor Mounting Equipment



Features

- ▶ **Maximum load: 9 kg (20 lb)**
- ▶ **Attractive Appearance**
- ▶ **Versatile Design**
- ▶ **Adjustable Mount Heads**
- ▶ **Lightweight**
- ▶ **Corrosion-Resistant Finish**

This series of indoor/outdoor mounting equipment is designed for fixed camera or camera housing installations up to a rated load of 9 kg (20 lb). All models are made of lightweight aluminum, and feature welded construction, providing an extremely rigid camera mount. All mounts come fully assembled.

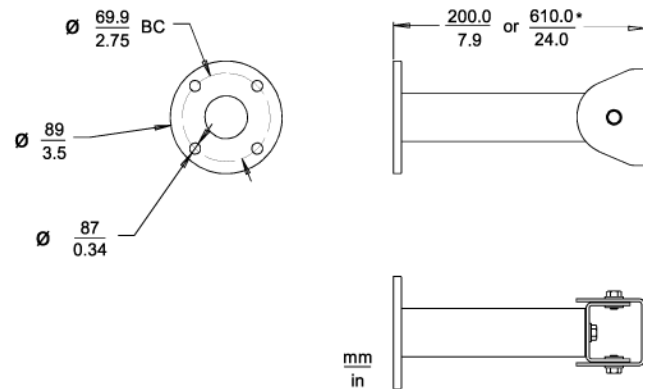
The LTC 9210/00 is a 200 mm (8 in) column mount, constructed of 38 mm (1.5 in) OD aluminum tubing with a welded surface mounting flange. An adjustable head is included for mounting a camera or housing. The adjustable head employs hex head screws and friction washers. The top mounting plate includes three (3) mounting holes for easy installation.

The LTC 9223/00 column mount is similar to the LTC 9210/00, but with a height of 610 mm (24 in). The LTC 9212/00 is a 300 mm (12 in) wall mount constructed of 38 mm (1.5 in) OD aluminum tubing, with a welded surface mounting flange. This unit includes an adjustable head, mounted on a 90 degree angle bend, to permit

mounting of a camera or housing. The adjustable head employs hex head screws, friction washers, and three (3) mounting holes for easy installation.

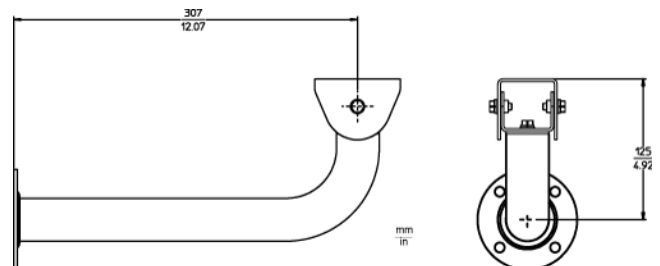
The LTC 9213/01 is a pole mount adaptor bracket, which facilitates mounting of the LTC 9212/00 mount and LTC 9215 Series Feed-through mounts, to a 3- to 15-inch diameter pole. Stainless steel straps are included for ease of mounting.

Installation/Configuration Notes

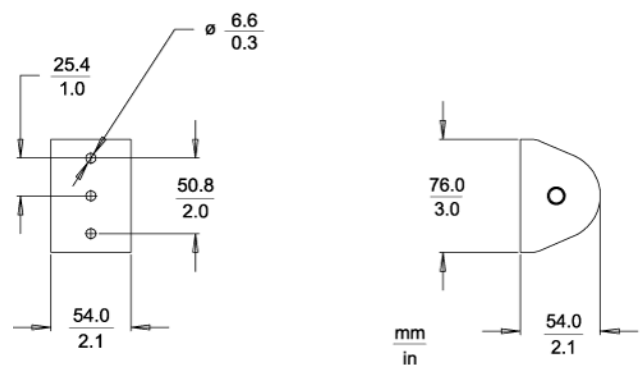


LTC 9210/00 Column Mount, 200 mm (8 in)

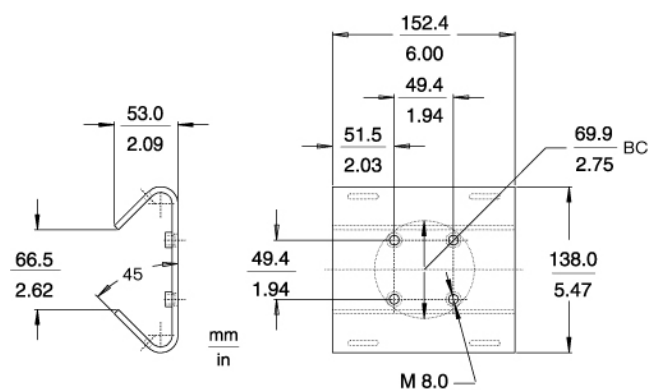
LTC 9223/00 Column Mount, 610 mm (24 in)



LTC 9212/00 Wall Mount, 300 mm (12 in)



Dimensional Outline for adjustable head



LTC 9213/01 Pole Mount Adapter

Technical Specifications

LTC 9210/00, LTC 9212/00, LTC 9223/00, LTC 9213/01

Indoor/Outdoor Mounts

Maximum Load	9 kg (20 lb)
Mounting Head	Adjustable 360° pan, 180° tilt (N/A for LTC 9213/01)
Finish	Light gray

LTC 9210/00 20-mm (8-inch)

Column Mount

LTC 9223/00 610-mm (24-inch)

Column Mount

Approx. Weights

LTC 9210/00	300 g (0.6 lb)
LTC 9223/00	544 g (1.2 lb)

LTC 9213/01 Pole Mount Adapter

Mounting Hardware	Two (2), 1.5 m (5 ft) stainless steel straps, (2) banding clips, (4) hex head cap screws, and (4) lockwashers are furnished with unit.
Options	TC9311PM3T strapping tool available. Refer to Data Sheet for Accessories For Domed Housings.
Approx. Weight	850 g (1.9 lb)

Ordering Information

LTC 9210/00 Column Mount

for 8-inch, 9 kg (20 lb) max load, light gray finish

LTC 9210/00

LTC 9212/00 Wall Mount

for 12-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, light gray finish

LTC 9212/00

LTC 9223/00 Column Mount

for 24-inch, 9 kg (20 lb) max load, light gray finish

LTC 9223/00

LTC 9213/01 Pole Mount Adapter

for LTC 9210, LTC 9212 and LTC 9215, light gray finish

LTC 9213/01

LTC 9210/01, LTC 9215/00 (S), LTC 9219/01, and LTC 9223/01 Indoor/ Outdoor Mounts



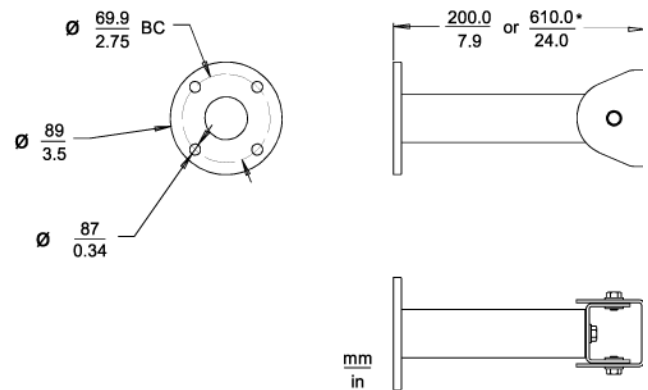
Features

- ▶ **Feed-through Design for Cable Management**
- ▶ **Maximum Load: 9 kg (20 lb)**
- ▶ **360° Rotation, 180° Tilt**
- ▶ **Versatile Design**
- ▶ **Adjustable Mount Heads**
- ▶ **Lightweight**
- ▶ **Corrosion-resistant Finish**

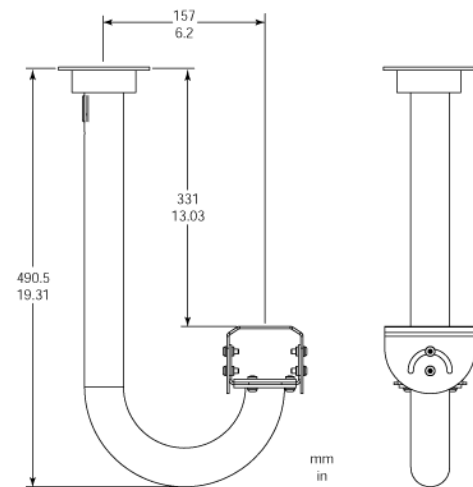
The LTC 9210/01, LTC 9215/00, LTC 9215/00S, LTC 9219/01 and the LTC 9223/01 feed-through mounts are indoor/outdoor mounting units designed for fixed camera, or camera housing installations with up to a 9 kg (20 lb) rated load. These models are made of lightweight aluminum and feature welded construction, providing an extremely rigid camera mount. In addition, the versatile swivel head rotates 360° and tilts 180° for maximum flexibility. The tubular feed-through design provides cable management from mounting head to mounting surface.

These mounts are compatible with the UHI Indoor Housing series and the UHO Outdoor Housing series. The LTC 9215/00S, has been designed specifically for the LTC 9480 Series housings, while the larger LTC 9215/00 and LTC 9219/01 can be used with the LTC 9480, HSG 9483, and the LTC 9488 Series camera housings. All mounts come fully assembled.

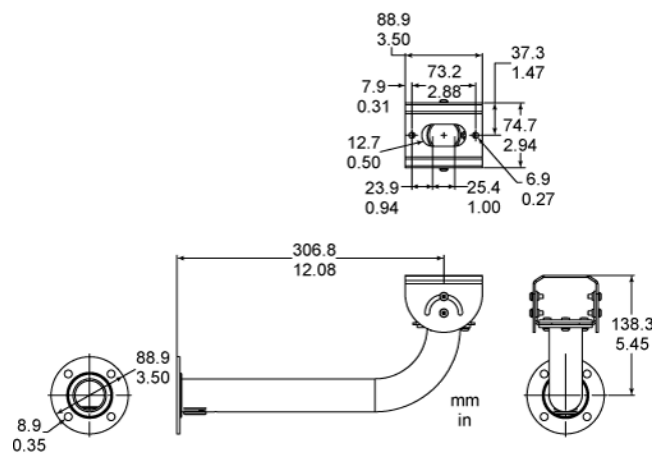
Installation/Configuration Notes



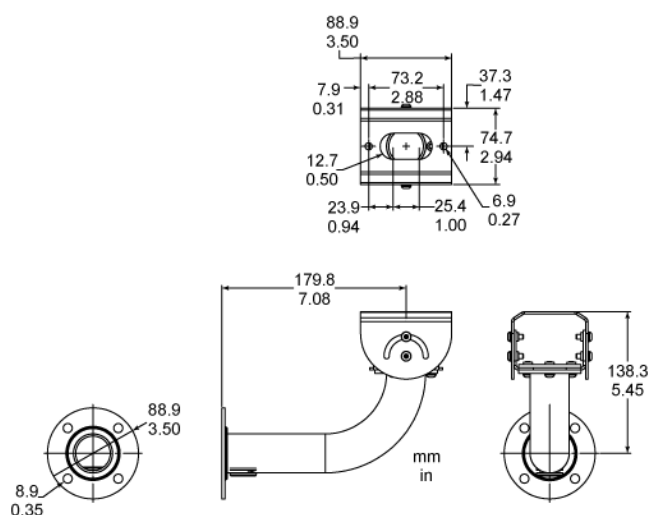
LTC 9210/01 and LTC 9223/01 Column Mount



LTC 9219/01 Feed-through J-Mount



LTC 9215/00 Wall Bracket



LTC 9215/00S Short Wall Bracket

Technical Specifications**LTC 9210/01 20 mm (8 in) Indoor Outdoor**

Column Mount

Maximum Load	9 kg (20 lb)
Mounting Head	Adjustable 360° pan, 180° tilt
Finish	Light gray
Approx. Weight	0.3 kg (0.6 lb)

LTC 9215/00 30 mm (12 in) Indoor/Outdoor

Feed-through Wall Mount

Maximum Load	9 kg (20 lb)
Mounting Head	Adjustable 360° pan, 180° tilt
Finish	Light gray
Approx. Weight	0.4 kg (0.9 lb)
Accessory for LTC 9215/00	LTC 9213/01 Pole Mount Adapter

LTC 9215/00S 18 cm (7 in) Indoor/Outdoor

Feed-through Wall Mount

For use with LTC 9480 Series housings.

Maximum Load	9 kg (20 lb)
Mounting Head	Adjustable 360° pan, 180° tilt
Finish	Light gray
Approx. Weight	0.3 kg (0.7 lb)
Accessory for LTC 9215/00S	LTC 9213/01 Pole Mount Adapter

LTC 9219/01 40 cm (15 in) Indoor/Outdoor

Feed-through Ceiling J-Mount

Maximum Load	9 kg (20 lb)
Mounting Head	Adjustable 360° pan, 180° tilt
Finish	Light gray
Approx. Weight	0.55 kg (1.2 lb)

LTC 9223/01 610 mm (24 in) Indoor Outdoor

Column Mount

Maximum Load	9 kg (20 lb)
Mounting Head	Adjustable 360° pan, 180° tilt
Finish	Light gray
Approx. Weight	0.544 kg (1.2 lb)

Warning Mounts must be mounted as shown.**Ordering Information**

LTC 9210/01 Column Mount **LTC 9210/01**
for 8-inch, 9 kg (20 lb) max load, light gray finish

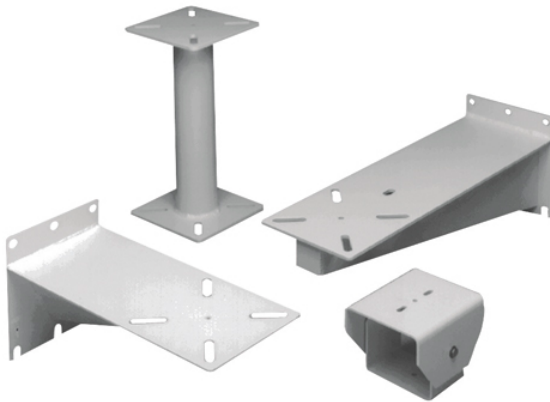
LTC 9215/00 Wall Bracket **LTC 9215/00**
for 12-inch, 9 kg (20 lb) max load, for LTC 9380 and LTC 948x series housings, feed-through version, light gray finish

LTC 9215/00S Short Wall Bracket **LTC 9215/00S**
for 7-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, feed-through version, light gray finish

LTC 9219/01 Feed-through J-Mount **LTC 9219/01**
for 15-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, light gray finish

LTC 9223/01 Column Mount **LTC 9223/01**
for 24-inch, 9 kg (20 lb) max load, light gray finish

LTC 921x, LTC 922x Versatile Mounts



Features

- ▶ **Maximum Load: 45 kg (100 lb) and 90 kg (200 lb)**
- ▶ **Attractive Appearance**
- ▶ **Corrosion-resistant**
- ▶ **Versatile Mounting Hole Pattern**
- ▶ **Wide Range of Models**

Our wide selection of indoor/outdoor mounting brackets includes column, wall, pole, corner, and adjustable head mounts. These versatile mounts accommodate fixed cameras, environmental camera housings and pan/tilts.

All units are made of a lightweight aluminum alloy with a corrosion-free exterior coating. These products meet the Military Salt Atmosphere Standard MIL-STD-810E, Method 509, Procedure I. The column and wall mounts feature welded construction providing an extremely rigid camera mount one-third the weight of steel.

Installation of a wide range of devices is facilitated with generous wrench and socket clearances. Unique slotted mounting hole patterns are on the mounting surface.

The LTC 9214/00 is a 356 mm (14 in) column mount for medium and heavy duty camera assembly installations. It is constructed of 76 mm (3 in) OD aluminum tubing with welded end flanges. The center of each flange is fitted with a 1/4-20 threaded stainless steel insert for center mounting.

The LTC 9224/00 is identical to the LTC 9214/00, except the overall length is 610 mm (24 in).

The LTC 9216/00 is a 409 mm (16 in) wall mount, designed for light to medium duty camera installations.

The LTC 9222/00 is a 564 mm (22 in) wall mount, designed for heavy duty cameras installations.

The LTC 9227/00 is an adjustable head bracket, designed for medium and heavy duty fixed camera installations. This easy-to-assemble bracket includes stainless steel assembly hardware and neoprene washers.

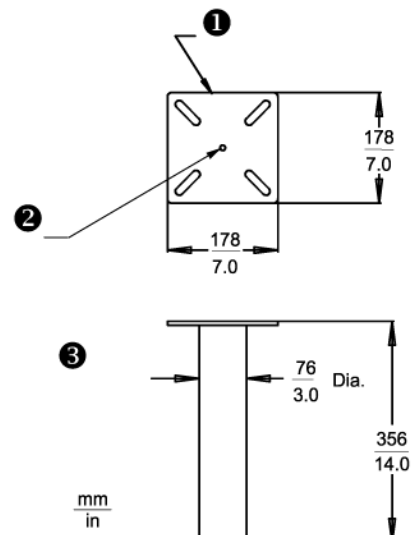
The LTC 9227/00 can be used with all mounts in this series.

The LTC 9228/00 flange bracket is used to increase the weight distribution when the LTC 9216/00 or LTC 9222/00 wall mounts are required for use on insufficient load bearing surfaces.

The LTC 9225/00 pole mount is a mounting bracket designed to install LTC 9216/00 and LTC 9222/00 wall mounts to poles measuring 76 mm (3 in) to 381 mm (15 in) in diameter.

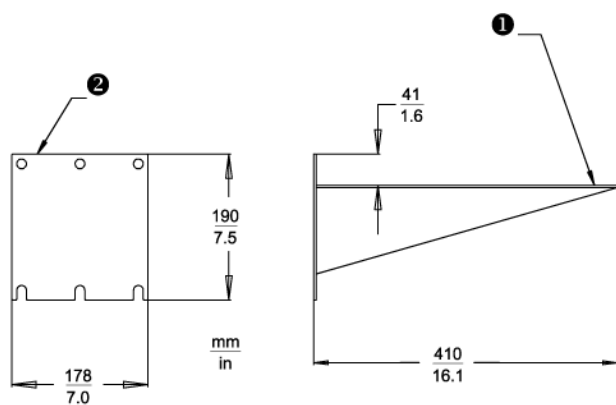
The LTC 9226/00 corner bracket is an adapter designed to install the LTC 9216/00 or LTC 9222/00 wall mounts to a building corner.

Installation/Configuration Notes



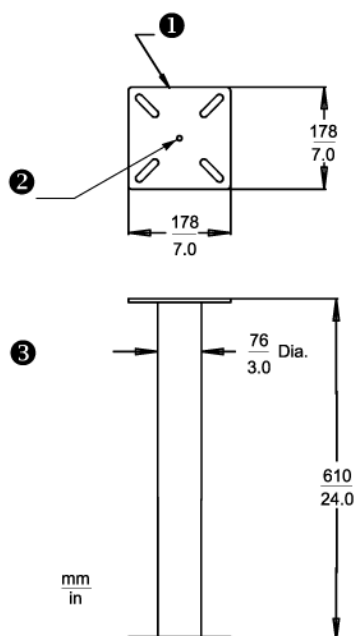
LTC 9214/00 14-inch Column Mount

- 1 Bolt Circle View same as wall mounts
- 2 1/4-20 Top and bottom
- 3 Side View



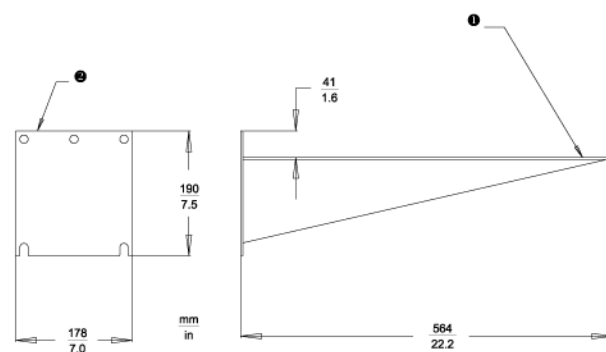
LTC 9216/00 14-inch Column Mount

- 1 See detail A for Top view of mounting pattern
- 2 See detail B



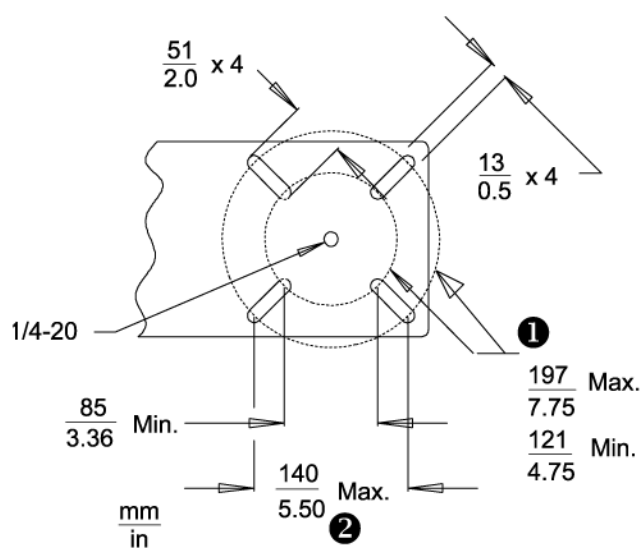
LTC9224/00 16-inch Wall Mount

- 1 Bolt circle same as wall mount
- 2 1/4 -20 Top and Bottom
- 3 Side view



LTC 9222/00 22-inch Wall Mount

- 1 See detail A for top view of mounting pattern
- 2 See detail B



Detail A - LTC 9216/00 and LTC 9222/00 Bolt Circle Pattern

- 1 Mounting Bolt Circles
- 2 Bolt Squares



Detail B – LTC 9216 and LTC 9222/00 Wall Mount



LTC 9227/00 Adjustable Head Mount

- 1 Top view
- 2 Side view
- 3 Bottom view
- 4 Tilt adjust



LTC 9228/00 Flange Bracket Mount



LTC 9225/00 Pole Mount



LTC 9226/00 Corner Bracket

Technical Specifications**LTC 9214/00 356 mm (14 inch) and LTC 9224/00 610 mm (24 inch)**

Column Mounts

Maximum Rated Load

Upright 90.6 kg (200 lb)

Inverted 45.3 kg (100 lb)

Mounting Hardware Not furnished

Finish Light gray

Weight

LTC 9214/00 2.3 kg (5.1 lb)

LTC 9224/00 3.3 kg (7.2 lb)

LTC 9216/00 409 mm (16 inch) and LTC 9222/00 564 mm (22 inch)

Wall Mounts

Maximum Rated Load

LTC 9216/00 45.3 kg (100 lb)

LTC 9222/00 90.6 kg (200 lb)

Mounting Hardware Not furnished

Finish Light gray

Weight

LTC 9216/00 1.6 kg (3.5 lb)

LTC 9222/00 2.9 kg (6.5 lb)

Note Do not mount the LTC 9216/00 Or LTC 9222/00 Wall Mounts in an inverted position.

LTC 9227/00 Adjustable Head Mount

Maximum Rated Load 45.3 kg (100 lb)

Mounting Hardware Not furnished

Finish Light gray

Weight 0.55 kg (1.2 lb)

LTC 9228/00 Flange Bracket

Maximum Rated Load 45.3 kg (100 lb)

Mounting Hardware (5) 3/8-16 x 1 1/4 studs, (5) 3/8 flat washers, and (5) 3/8-16 lock nuts

Finish Light gray

Weight 2.1 kg (4.6 lb)

LTC 9225/00 Pole Mount

Maximum Rated Load 45.3 kg (100 lb)

Mounting Hardware Two (2) 5 ft stainless steel straps, two (2) banding clips, six (6) hex head cap screws, six (6) flat and lock washers, and six (6) hex nuts furnished with unit

Accessory TC9311PM3T strapping tool available

Finish Light gray

Weight 1.4 kg (3.0 lb)

LTC 9226/00 Corner Bracket

Maximum Rated Load 45.3 kg (100 lb)

Mounting Hardware Not furnished

Finish Light gray

Weight 2.9 kg (6.5 lb)

Ordering Information

LTC 9214/00 Versatile Mount **LTC 9214/00**
for 14-inch, 90.6 kg (200 lb) max load up-right, light gray finish

LTC 9224/00 Versatile Mount **LTC 9224/00**
for 24-inch, 90.6 kg (200 lb) max load up-right, light gray finish

LTC 9216/00 Versatile Mount **LTC 9216/00**
for 16-inch, 45.3 kg (100 lb) max load, light gray finish

LTC 9222/00 Versatile Mount **LTC 9222/00**
for 22-inch, 90.6 kg (200 lb) max load, light gray finish

LTC 9227/00 Versatile Mount **LTC 9227/00**
for LTC 9216 and LTC 9222/00, 45.3 kg (100 lb) max load, adjustable head, light gray finish

LTC 9228/00 Versatile Mount **LTC 9228/00**
for LTC 9216/00 and LTC 9222/00 wall mounts, 45.3 kg (100 lb) max load, flange bracket

LTC 9225/00 Pole Mount **LTC 9225/00**
45.3 kg (100 lb) max load, pole mount, light gray finish

LTC 9226/00 Versatile Mount **LTC 9226/00**
for LTC 9216 and LTC 9222, 45.3 kg (100 lb) max load, corner mount bracket, light gray finish

MTC-G1001 and MTC-S1001 Indoor Camera Mounts



Features

- ▶ **Created for Bosch Dinion cameras**
- ▶ **Versions to complement all Dinion and Dinion^{XF} models**
- ▶ **Sturdy yet lightweight construction**
- ▶ **Cable feed-through construction**
- ▶ **Attractive and versatile in design**
- ▶ **Fully adjustable**

The MTC-S1001 and MTC-G1001 Indoor Camera Mounts are specifically designed for Bosch's Dinion cameras. The MTC-S1001 has a silver finish and works with the Dinion^{XF} series. In addition to being highly attractive, this silver coating meets UN-D-1235 standards and is resistant to chemical substances. The MTC-G1001 comes in a classic gray color to complement all other Dinion models.

Both Camera Mounts are lightweight and extremely sturdy - they can withstand a pulling force of up to 250N when mounted with the supplied screws. When installed with the extra washers the Camera Mounts can handle a pulling force of up to 430N before breaking or before damaging the fixation holes*.

The versatile MTC-S1001 and MTC-G1001 are easy to install – all of the mounting accessories are included. A discrete opening in the base of each shaft enables a cable to be easily fed to the camera. The length of the camera mounts are designed specifically for the Bosch Dinion range, and with camera mounting heads that can be

panned through 360° pan and tilted 180°, they offer maximum adjustment flexibility. The Camera Mounts are available in 5-pack boxes for customer convenience.

* Based on the test reports for each model

Technical Specifications

MTC-G1001 Economical Wall Mount (for Dinion)

Maximum load	15 kg (33 lb)
Mounting head	Adjustable; 360° pan, 180° tilt
Mounting bolt	Standard 1/4-20
Mounting hardware	Screws and plastic wall anchors
Finish	Off-white / gray semi-gloss
Weight	100 g (0.22 lb)

MTC-S1001 Economical Wall Mount (for Dinion^{XF})

Maximum load	15 kg (33 lb)
Mounting head	Adjustable; 360° pan, 180° tilt
Mounting bolt	Standard 1/4-20
Mounting hardware	Screws and plastic wall anchors
Finish	Silver
Weight	100 g (0.22 lb)

Ordering Information

MTC-G1001 Indoor Camera Wall Mount Indoor camera wall mount, Dinion camera, Off-white, 5-pack	MTC-G1001
MTC-S1001 Indoor Camera Wall Mount Indoor camera wall mount, Dinion ^{XF} camera, Silver, 5-pack	MTC-S1001

EXMB.002 Ceiling and Pedestal Bracket



This heavy duty bracket is designed to fit small enclosures as a ceiling bracket or (inverted) as a pedestal bracket. Its double-bolted pan/tilt head ensures anchorage under vibration loads. The pan-adjust bolt on the underside can also be used to hang infrared illuminators.

Technical Specifications

Material	3/8 in thick aluminum
Coating	Black (Standard), White (Optional)
Weight	0.82 kg (1.8 lbs)
Maximum Load	11.4 kg (25 lbs)
Hardware	Nickel Coated Steel Bolts and Nuts
	1 Bolt 5/16-18 x 1.00 in (Pan Adjust Lock)
	1 Bolt 5/16-18 x 1.75 in (Tilt Adjust)
	1 Bolt 1/4-20 x 1.75 in (Tilt Adjust Lock)

EXMB.007 Heavy Duty Wall Bracket



A versatile heavy-duty wall bracket with a dual pin flat plate housing platform has bolt hole arrangements to suit many Extreme CCTV camera housing models. The flat plate is also tilt adjustable with two bolts for secure positioning and single bolt for easy pan positioning. An extra screw slot with bolts allows easy integration with Extreme CCTV illuminators such as the UFLED and SuperLED. EXMB.007 is perfect for solid wall mount applications on various buildings.

Functions

Compatible Camera Housings

- EX15
- EX18
- EX50, EX52
- EX62, EX63

Technical Specifications

Material	1.5 in. square aluminum
Coating	Black (Standard) / White (Optional)
Weight	1.5 kg (3.5 lbs)
Maximum Load	11.3 kg (25 lbs)
Dimensions (HxWxD)	254 x 134 x 295 mm 10 x 5.3 x 11.6 in

Ordering Information

EXMB.007W Heavy Duty Wall bracket
Heavy Duty Wall Bracket, White

EXMB.007W

EXMB.015 Pole Mount Adapter Bracket



A versatile pole mount adaptor that allows for easy installation of several wall bracket models. Thick aluminum plate construction is powder coated black. Two stainless steel gear straps are provided for poles up to 203 mm (8 in) in diameter. Additional straps can be used for installations on larger poles.

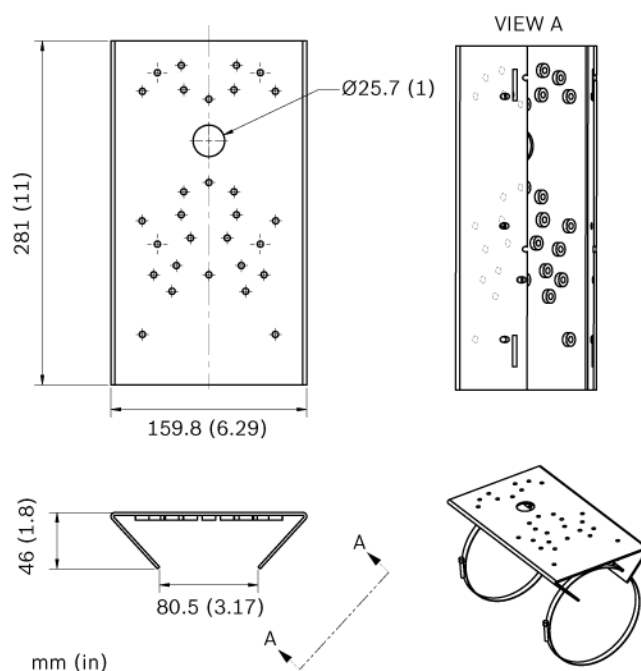
Functions

Compatible Brackets

- EXMB.020 Heavy duty L- Bracket
- EXMB.023 Wall bracket
- EXMB.028 Cable-managed wall bracket
- EXMB.045 Heavy duty wall bracket for pendant mounting

Installation/Configuration Notes

Dimensions



Technical Specifications

Material	Aluminum
Coating	Black Polyurethane Coating
Weight	0.75 kg (1.66 lbs)
Max. Load	90 kg (200 lbs)
Max. Diameter	203 mm (8 in)
Min. Diameter	89 mm (3.5 in)
Hardware	2 Stainless Steel gear straps
Dimensions (HxW)	281 x 159 mm (11.24 x 6.36 in)

Ordering Information

EXMB.015B Pole Mount Adapter Bracket Pole Mount Adapter, black	EXMB.015B
EXMB.015W Pole Mount Adapter Bracket Pole Mount Adapter Bracket, white	EXMB.015W

EXMB.017 Wall Mount Adapter Bracket



A versatile wall mount adaptor that allows for easy installation of several wall bracket models. Thick aluminum plate construction is powder coated black.

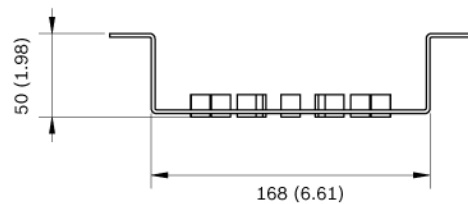
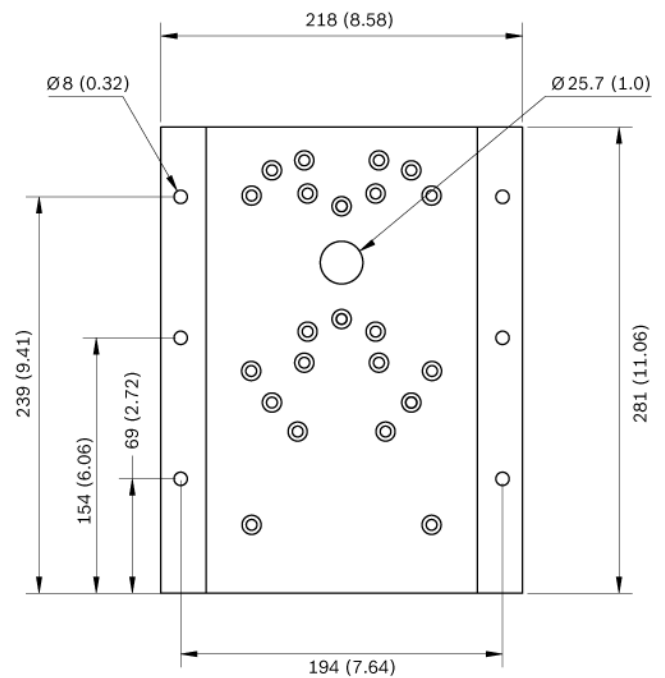
Functions

Compatible Brackets

- EXMB.020 Heavy duty L- Bracket
- EXMB.023 Wall bracket
- EXMB.028 Heavy Duty Wall Bracket
- EXMB.045 Heavy duty wall bracket for pendant mounting

Installation/Configuration Notes

Dimensions



Technical Specifications

Material	Aluminum
Coating	Black or white
Weight	0.89 kg (1.97 lbs)
Max Load	45 kg (100 lbs)
Dimensions (HxW)	281 x 218 mm (11.06 x 8.58 in)

Ordering Information

EXMB.017W Wall Mount Adapter Bracket Wall Mount Adapter, White	EXMB.017W
EXMB.017B Wall Mount Adapter Bracket Wall Mount Adapter, Black	EXMB.017B

EXMB.020 L-bracket



Technical Specifications

Material	3/8 in thick aluminum
Coating	Black (Standard)
	White (Optional)
Weight	0.55 kg (1.2 lbs)
Maximum Load	11.4 kg (25 lbs)

Ordering Information

EXMB.020W L-Bracket
L-Bracket Only, Heavy Duty, white

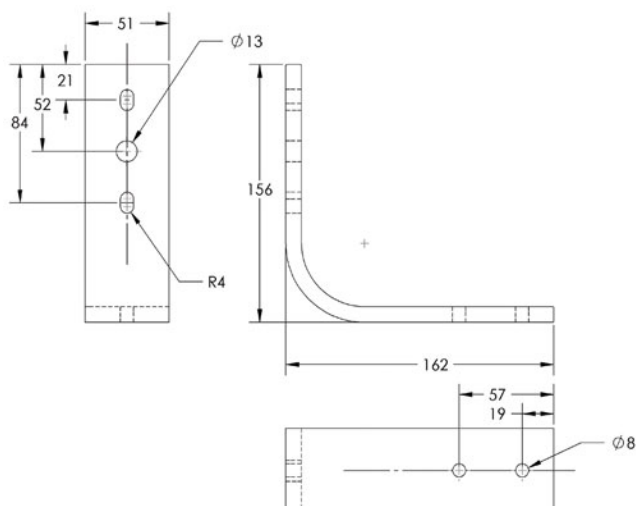
EXMB.020W

Features

- ▶ **Simple, effective L-bracket**
- ▶ **Made of thick flat-bar aluminum**
- ▶ **Versatile design reduces installation time**

This heavy duty wall bracket is designed to fit small enclosures for tight locations. The pan-adjusted bolt on the underside can also be used to hang infrared illuminators such as the UF100 and UF500 models.

Installation/Configuration Notes



Parts Included

- Wall mount anchors not included.

EXMB.029 Ceiling Mount Brackets



Features

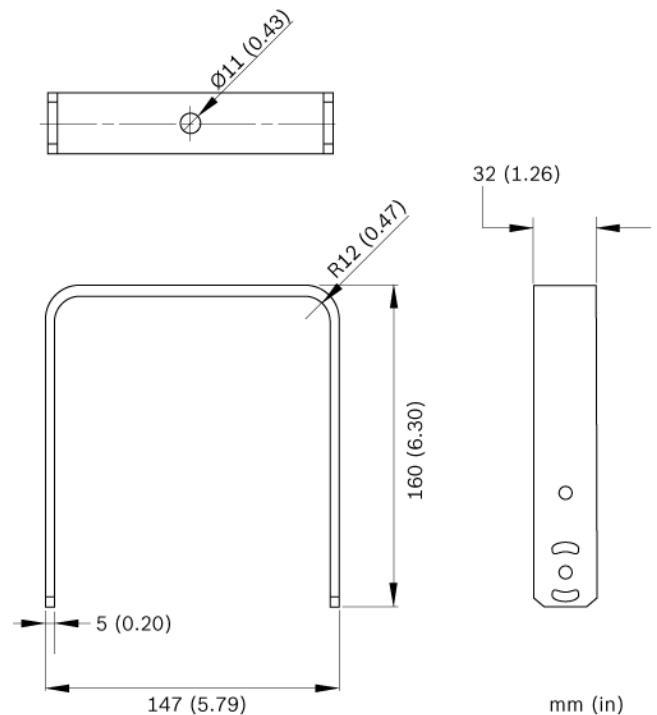
- ▶ Made of thick cast aluminum
- ▶ Pan/tilt adjustable camera platform
- ▶ Designed for secure ceiling mount applications
- ▶ Lightweight design

Ceiling mount bracket designed for ceiling mount applications. The thick cast aluminum is extremely durable and tough, and has a versatile design that enables compatibility with the REG-L1 License Plate Capture Camera and infrared imagers.

The bracket weighs only 0.19 kg (0.41 lb) with a maximum load of 10 kg (22 lb) and is pan/tilt adjustable for fast and easy installations.

Installation/Configuration Notes

Dimensions



Technical Specifications

Construction	Cast aluminum
Finish	Black or white
Weight	0.19 kg (0.41 lb)
Maximum load	0.10 kg (0.22 lb)
Maximum tilt	20° from vertical

Ordering Information

EXMB.029W Ceiling Mount Bracket Ceiling Mount Bracket, white	EXMB.029W
EXMB.029B Ceiling Mount Bracket Ceiling Mount Bracket, Black	EXMB.029B

EXMB.028 Cable Managed Wall Bracket

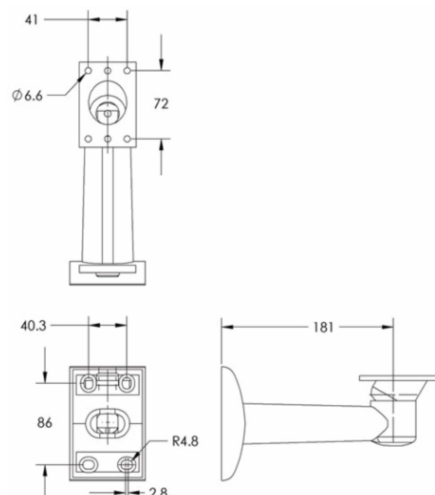


Features

- ▶ **Made with thick cast aluminum**
- ▶ **Pan/Tilt adjustable camera platform**
- ▶ **Tough 4-bolt anchorage**
- ▶ **Light weight design weighing 0.45 kg (1.0 lbs)**

A heavy-duty wall bracket designed for rugged outdoor applications. The thick cast aluminium is extremely durable and tough while its versatile design enables compatibility with the REG D1 and REG L1 cameras. The design enables complete cable management, concealing wires for maximum protection and aesthetics. The EXMB.028 bracket weighs only 0.45 kg (1.0 lb) and is pan/tilt adjustable for convenience and customized surveillance angles.

Installation/Configuration Notes



Technical Specifications

Construction	Cast aluminum
Finish	Black or White
Weight	0.45 kg (1.0 lb)

Ordering Information

EXMB.028B Cable Managed Wall Bracket Cable-managed arm bracket, black	EXMB.028B
EXMB.028W Cable Managed Wall Bracket Cable-managed arm bracket, white	EXMB.028W

EXMB.023 Wall Bracket



A tough die-cast aluminum wall bracket with a sturdy 4-bolt base is designed for installation with the EX26 and EX27 camera and LED infrared products

Technical Specifications

Material	Aluminum
Coating	Black (standard), White (optional)
Weight	0.68 kg (1.5 lb)
Maximum Load	9.1 kg (20 lb) on tilt-head

Ordering Information

EXMB.023B Wall Bracket
Wall Bracket, Black

EXMB.023B

EXMB.045 Dome Pendant Bracket



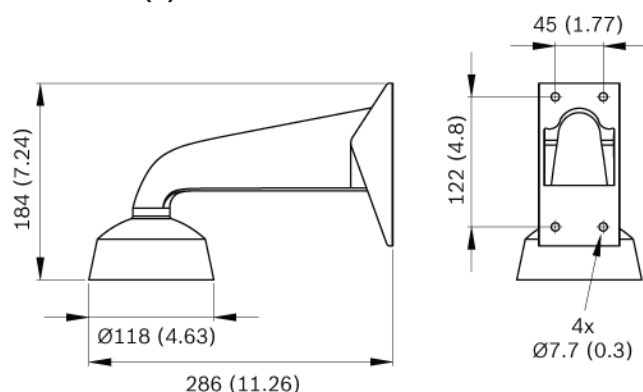
Features

- ▶ **Attractive cast metal design**
- ▶ **Hollow core for cable-free appearance**
- ▶ **Tough 4-bolt anchorage**
- ▶ **Compatible for various dome cameras**

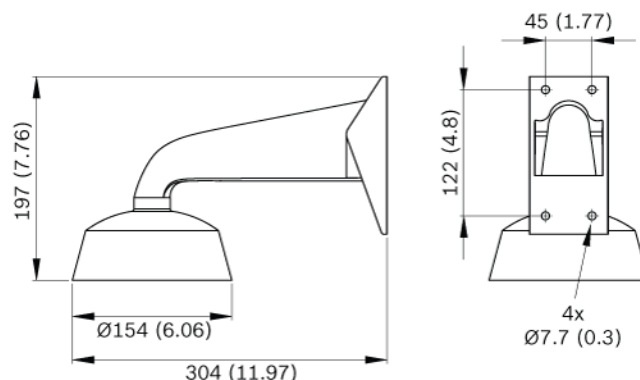
A heavy duty wall bracket for pendant mounting of Extreme CCTV dome cameras and LED infrared illuminators. Cast aluminum design allows for cable management and tough 4-bolt anchorage. The durable powder-coat finish resists corrosion to ensure a long life.

Installation/Configuration Notes

EXMB.045B(S) dimensions



EXMB.045WZ dimensions



Technical Specifications

Material	Cast Aluminum
Coating	Powder coated, black or silver
Weight (EXMB.045S/EXMB.045B)	1.13 kg (2.5 lb)
Weight (EXMB.045WZ)	1.6 kg (3.5 lb)
Max Load	34 kg (75 lbs)
Hardware	Included for mounting camera (Anchorage bolts not supplied)

Ordering Information

EXMB.045B Dome Pendant Bracket **EXMB.045B**
Dome Pendant Bracket for EX40(N) and EX46LED, black

EXMB.045WZ Dome Pendant Bracket **EXMB.045WZ**
Dome Pendant Bracket for WZ45, silver

EXMB.061 Pole Top Bracket



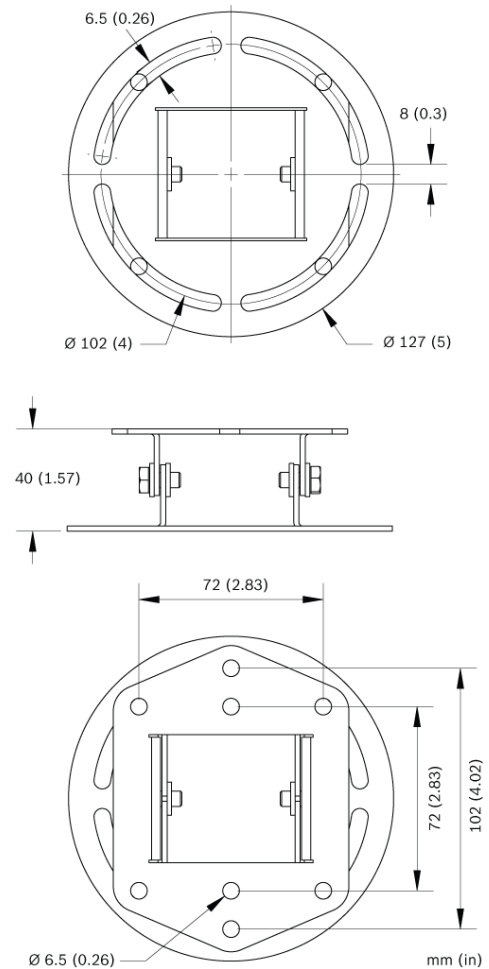
The EXMB.061 is a 4-inch PCD pole top bracket for a variety of CCTV Integrated Day/Night and license plate capture cameras.

The EXMB.061 has an innovative symmetrical design to help ensure balanced weight distribution. Robust stainless steel design provides hassle-free durability even through years of extreme weather abuse.

Fast, simple and easy to install, the EXMB.61 provides a clean, sleek solution for pole mounted applications.

Installation/Configuration Notes

Dimensions



Technical Specifications

Construction	Stainless steel
Finish	Black
Weight	0.3 kg (0.67 lb)
Maximum Load	10 kg (22 lb)
Minimum. Pole Top Diameter	105 mm (4.13 in)

Ordering Information

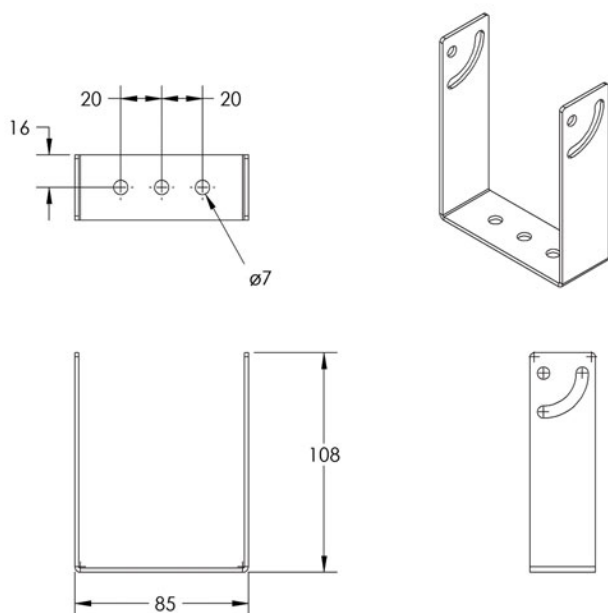
EXMB.061 Pole Top Bracket
Stainless Pole Top Bracket

EXMB.061

BRKU10 U-type Bracket



Installation/Configuration Notes



Technical Specifications

Material	Stainless Steel
Coating	Black powder coated
Weight	0.14 kg (0.3 lb)
Hardware	Metric
Dimensions (LxWxH)	85 mm x 32 mm x 110 mm
	3.3 in x 1.3 in x 4.3 in

Ordering Information

BRKU10 U-type Bracket
Bracket, U-type for EX10, black

BRKU10

WZMB.001 Gang Box Adapter Plate

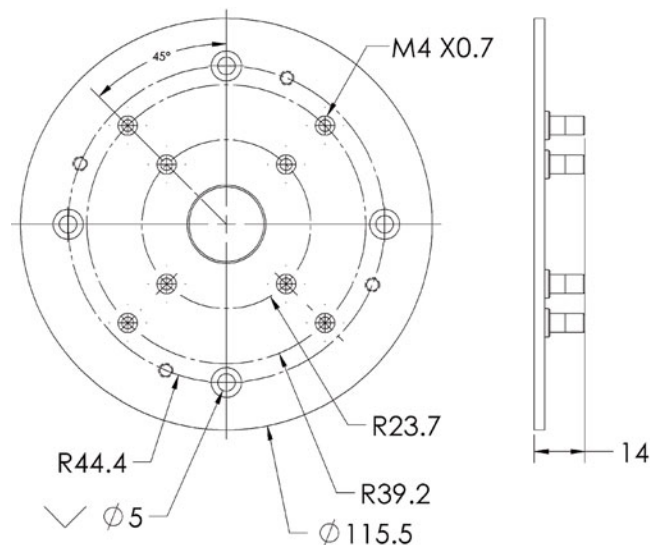


The WZMB.001 is an innovative adapter plate that enables the WZ18 or WZ20 to be mounted onto a circular gang box. It is suitable for harsh outdoor environments.

Matching standard circular electric fittings, the WZMB.001 has a diameter of 115.5 mm (4.5 in). The WZMB.001 features fully sealed toughened aluminum design, enabling performance in harsh outdoor environments.

A quick and easy solution for neat, clean installations, the WZMB.001 fits both the WZ18 and WZ20 Integrated Day/Night (IDN) bullet cameras.

Installation/Configuration Notes



Ordering Information**WZMB.001 Gang Box Adapter Plate****WZMB.001**

Gang box adapter plate for WZ18 and WZ20

LTC 9418 Series Outdoor Pan/Tilts



Features

- ▶ **Maximum Load: 10 kg (22 lb)**
- ▶ **Low Profile, Compact Size**
- ▶ **Corrosion Resistant Hardware**
- ▶ **100% Duty Cycle Motors**
- ▶ **Upright or Inverted Operation**

The LTC 9418 Series Weatherproof Outdoor Pan/Tilts are low profile, compact units constructed with corrosion resistant hardware. These remote positioning devices are rated for a maximum load of 10 kg (22 lb) and are fully system compatible with CCD cameras, lenses, and housing combinations.

Functions

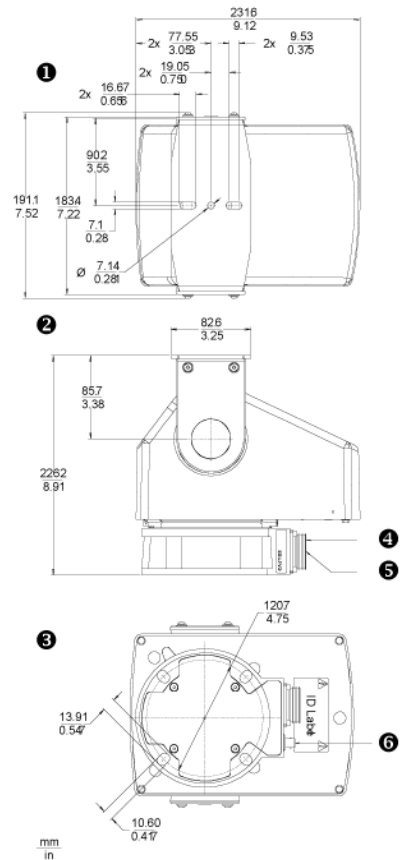
The 100% duty cycle motors permit continuous operation on all models. Low speed worm drives and flexible motor mounts offer quiet, smooth motion. The use of impedance and overload protected motors, long life limit switches, and permanently lubricated bearings reduce maintenance and provide reliable operation.

Certifications and Approvals

Product Regulatory Compliance

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Dimensional Outline

- Top view
- Side view
- Bottom view
- Ground screw (on other side of multipin connector)
- Multipin connector
- BNC Connector

Technical Specifications

Electrical

Model No. ¹⁾	Rated Motor Voltage	Operational Voltage Range
LTC9418/60	110 VAC, 60 Hz	108 to 132 VAC
LTC9418/20	24 VAC, 60 Hz	21.6 to 26.4 VAC
LTC9418/10	24 VAC, 50 Hz	21.6 to 26.4 VAC
LTC9418/50	220 VAC, 50 Hz	207 to 253 VAC

Connectors

Power	Via 24-pin connector on base
Ground	Screw connection for grounding on base

Recommended Maximum Cable Lengths:

Model	Wire Size		Distance	
	Voltage ²⁾	mm ²⁾	Feet	Meters
24 VAC		0.5	20	43
		1	18	230
		1.5	16	360
		2.5	14	590
115 VAC		4	12	940
		0.5	20	2200
		1	18	3500
		1.5	16	5500
230 VAC		2.5	14	9000
		0.5	20	13400
		1	18	21200
		1.5	16	33300
		2.5	14	54400

1) The total power for all models, with both motors running, is 24 W.

2) Values calculated at 20° C (68° F) using stranded tinned copper wire, a common ground (neutral), and with both pan and tilt motors operating simultaneously.

Mechanical

Mounting	These units are designed for either upright or inverted installations. To maintain weatherproof integrity when mounting outdoors in an inverted position, the unit must be installed in a weatherproof enclosure (e.g., weatherproof domed housing), or a protected outside area. They can only be mounted upright or inverted; never horizontally.
Pan Range (Movement in horizontal plane)	0° to 345° maximum
Pan Speed	7°/seconds
Tilt (Movement in vertical plane)	+30° to -90° from horizontal
Tilt Speed	3.5°/s seconds
Maximum Load	149 kg-cm (129 lb-in.) torque or 10 kg (22 lb) at a distance of 63.5 mm (2.5 in.) from the center of mass of the camera/lens/housing assembly to the center of the tilt table
Construction	Cast aluminum base and yoke, corrosion resistant plastic cover
Finish	Light gray
Dimensions	See Dimensional Outline
Weight	6.21 kg (13.7 lb)
Environmental	
Temperature	Operating: -30°C to +60°C (-22°F to +140°F) Storage: -40° to +60°C (-40°F to +140°F)
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 ms, 1/2 sine
Enclosure	Tested to IP54 requirements (upright mounting). UL 50 Type 3/NEMA-3 design.

Ordering Information

LTC 9418/10 Weatherproof Standard Pan/Tilts Max Load 10 kg, 24 VAC, 50 Hz	LTC 9418/10
LTC 9418/11 Weatherproof Pre-Position Pan/Tilts Max. load 10 kg, 24 VAC, 50 Hz	LTC 9418/11
LTC 9418/20 Weatherproof Standard Pan/Tilts Max. load 10 kg, 24 VAC, 60 Hz	LTC 9418/20
LTC 9418/21 Weatherproof Pre-Position Pan/Tilts Max. load 10 kg, 24 VAC, 60 Hz	LTC 9418/21
LTC 9418/50 Weatherproof Standard Pan/Tilts Max. load 10 kg, 230 VAC, 50 Hz	LTC 9418/50
LTC 9418/51 Weatherproof Pre-Position Pan/Tilts Max. load 10 kg, 230 VAC, 50 Hz	LTC 9418/51
LTC 9418/60 Weatherproof Standard Pan/Tilts Max. load 10 kg, 120 VAC, 60 Hz	LTC 9418/60
LTC 9418/61 Weatherproof Pre-Position Pan/Tilts Max. load 10 kg, 120 VAC, 60 Hz	LTC 9418/61
Accessories	
LTC 9216/00 Versatile Mount for 16-inch, 45.3 kg (100 lb) max load, light gray finish	LTC 9216/00
LTC 9214/00 Versatile Mount for 14-inch, 90.6 kg (200 lb) max load upright, light gray finish	LTC 9214/00
LTC 9226/00 Versatile Mount for LTC 9216 and LTC 9222, 45.3 kg (100 lb) max load, corner mount bracket, light gray finish	LTC 9226/00
LTC 9222/00 Versatile Mount for 22-inch, 90.6 kg (200 lb) max load, light gray finish	LTC 9222/00
LTC 9227/00 Versatile Mount for LTC 9216 and LTC 9222/00, 45.3 kg (100 lb) max load, adjustable head, light gray finish	LTC 9227/00
LTC 9228/00 Versatile Mount for LTC 9216/00 and LTC 9222/00 wall mounts, 45.3 kg (100 lb) max load, flange bracket	LTC 9228/00
LTC 9224/00 Versatile Mount for 24-inch, 90.6 kg (200 lb) max load upright, light gray finish	LTC 9224/00
LTC 9225/00 Pole Mount 45.3 kg (100 lb) max load, pole mount, light gray finish	LTC 9225/00

LTC 9420 Series Outdoor Pan/Tilts



Features

- ▶ **Maximum Load: 10 kg (22 lb)**
- ▶ **Low Profile, Compact Size**
- ▶ **Feed-through Wiring**
- ▶ **100% Duty Cycle Motors**
- ▶ **Upright or Inverted Operation**
- ▶ **Pre-position and 345° Models Available**

The LTC 9420 Series Weatherproof Pan/Tilts are low profile, compact units constructed with corrosion resistant hardware. Featuring feed-through wiring for lens and camera power, video, and external sync connections, these remote positioning devices are rated for a maximum load of 10 kg (22 lb) and are fully system compatible with CCD cameras, lenses, and housing combinations.

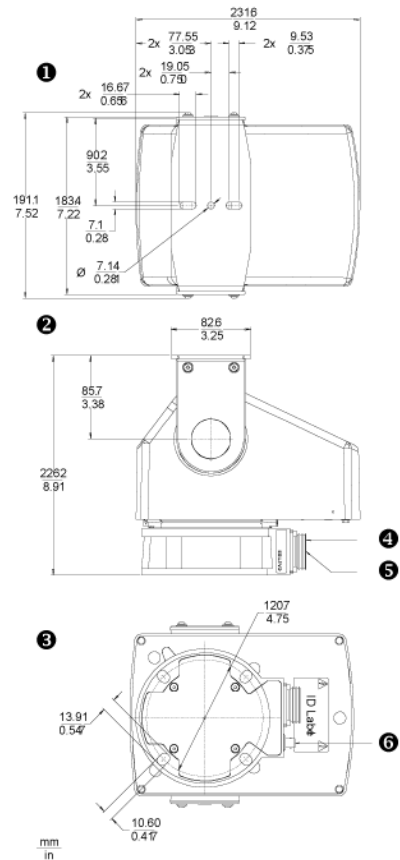
The 100% duty cycle motors permit continuous operation on all models. Low speed worm drives and flexible motor mounts offer quiet, smooth motion. The use of impedance and overload protected motors, long life limit switches, and permanently lubricated bearings reduce maintenance and provide reliable operation.

Certifications and Approvals

Product Regulatory Compliance

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Dimensional Outline

- 1 Top view
- 2 Side view
- 3 Bottom view
- 4 Ground screw (on other side of multipin connector)
- 5 Multipin connector
- 6 BNC Connector

Technical Specifications

Electrical

Model No. ¹⁾	Rated Motor Voltage	Operational Voltage Range
Standard Models -0° to 345°		
LTC9420/60	110 VAC, 60 Hz	108 to 132 VAC
LTC9420/20	24 VAC, 60 Hz	21.6 to 26.4 VAC
LTC9420/10	24 VAC, 50 Hz	21.6 to 26.4 VAC
LTC 9420/50	220 VAC, 50 Hz	207 to 253 VAC
Pre-position Models -0° to 345°		
LTC9420/61	110 VAC, 60 Hz	108 to 132 VAC
LTC9420/21	24 VAC, 60 Hz	21.6 to 26.4 VAC

Model No. ¹⁾	Rated Motor Voltage	Operational Voltage Range
LTC9420/11	24 VAC, 50 Hz	21.6 to 26.4 VAC
LTC9420/51	220 VAC, 50 Hz	207 to 253 VAC

Connectors:

Power	Via 24-pin connector on base through to 3-conductor cable on pan head
Lens and Accessories	Via 24-pin connector on base through to 10-conductor cable on pan head
Video	Via BNC connector on base through to Flying Lead coax on pan head
Ground	Screw connection for grounding on base

Recommended Maximum Cable Lengths:

Model Voltage ²⁾	Wire Size		Distance	
	mm ²	AWG	Feet	Meters
24 VAC	0.5	20	140	43
	1	18	230	70
	1.5	16	360	110
	2.5	14	590	180
115 VAC	4	12	940	287
	0.5	20	2200	671
	1	18	3500	1067
	1.5	16	5500	1677
230 VAC	2.5	14	9000	2744
	0.5	20	13400	4085
	1	18	21200	6463
	1.5	16	33300	10152
	2.5	14	54400	16585

1) The total power for all models, with both motors running, is 24 W.

2) Values calculated at 20° C (68° F) using stranded tinned copper wire common ground (neutral), and with both pan and tilt motors operating simultaneously.

Mechanical

Mounting These units are designed for either upright or inverted installations to 345° To maintain weatherproof integrity when mounting outdoors in an inverted position, the unit must be installed in a weather-proof enclosure (e.g., weatherproof domed housing) or a protected outside to 345° area. They can only be mounted upright or inverted; never horizontally.

Pan Range (Movement in horizontal plane)	
Pan Speed	7°/sec
Tilt (Movement in vertical plane)	
	+30° to -90° against the horizontal
Tilt Speed	3.5°/sec
Maximum Load	149 kg-cm (129 lb-in.) torque or 10 kg (22 lb) at a distance of 63.5 mm (2.5 in.) from the center of mass of the camera/lens/housing assembly to the center of the tilt table
Construction	Cast aluminum base and yoke, corrosion resistant plastic cover
Finish	Light gray

Dimensions	See Dimensional Outline
Weight	6.67 kg (14.7 lb)

Environmental

Temperature	
Operating	-30°C to +60°C (-22°F to +140°F)
Storage	-40°C to +60°C (-40°F to +140°F)
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 ms, 1/2 sine
Enclosure	Tested to IP54 requirements. UL 50 Type 3/NEMA-3 design (upright mounting)

Ordering Information

LTC 9420/10 Weatherproof Standard Pan/Tilts Max. load 10 kg, 24 VAC, 50 Hz, feed-through wiring	LTC 9420/10
LTC 9420/11 Weatherproof Pre-position Pan/Tilts Max. load 10 kg, 24 VAC, 50 Hz, feed-through wiring	LTC 9420/11
LTC 9420/12 Weatherproof Continuous Pan Pan/Tilts Max. load 10 kg, 24 VAC, 50 Hz, feed-through wiring	LTC 9420/12
LTC 9420/13 Weatherproof Continuous Pan Models with Pre-position Max. load 10 kg, 24 VAC, 50 Hz, feed-through wiring	LTC 9420/13
LTC 9420/20 Weatherproof Standard Pan/Tilts Max. load 10 kg, 24 VAC, 60 Hz, feed-through wiring	LTC 9420/20
LTC 9420/21 Weatherproof Pre-position Pan/Tilts Max. load 10 kg, 24 VAC, 60 Hz, feed-through wiring	LTC 9420/21
LTC 9420/22 Weatherproof Continuous Pan Pan/Tilts Max. load 10 kg, 24 VAC, 60 Hz, feed-through wiring	LTC 9420/22
LTC 9420/23 Weatherproof Continuous Pan Models with Pre-position Max. load 10 kg, , 24 VAC, 60 Hz, feed-through wiring	LTC 9420/23
LTC 9420/50 Weatherproof Standard Pan/Tilts Max. load 10 kg, 230 VAC, 50 Hz, feed-through wiring	LTC 9420/50
LTC 9420/51 Weatherproof Pre-position Pan/Tilts Max. load 10 kg, 230 VAC, 50 Hz, feed-through wiring	LTC 9420/51
LTC 9420/60 Weatherproof Standard Pan/Tilts Max. load 10 kg, 120 VAC, 60 Hz, feed-through wiring	LTC 9420/60

Ordering Information

LTC 9420/61 Weatherproof Pre-position Pan/Tilts	LTC 9420/61
Max. load 10 kg, 120 VAC, 60 Hz, feed-through wiring	

Accessories

LTC 9214/00 Versatile Mount	LTC 9214/00
for 14-inch, 90.6 kg (200 lb) max load up-right, light gray finish	

LTC 9224/00 Versatile Mount	LTC 9224/00
for 24-inch, 90.6 kg (200 lb) max load up-right, light gray finish	

LTC 9216/00 Versatile Mount	LTC 9216/00
for 16-inch, 45.3 kg (100 lb) max load, light gray finish	

LTC 9222/00 Versatile Mount	LTC 9222/00
for 22-inch, 90.6 kg (200 lb) max load, light gray finish	

LTC 9227/00 Versatile Mount	LTC 9227/00
for LTC 9216 and LTC 9222/00, 45.3 kg (100 lb) max load, adjustable head, light gray finish	

LTC 9228/00 Versatile Mount	LTC 9228/00
for LTC 9216/00 and LTC 9222/00 wall mounts, 45.3 kg (100 lb) max load, flange bracket	

LTC 9225/00 Pole Mount	LTC 9225/00
45.3 kg (100 lb) max load, pole mount, light gray finish	

LTC 9226/00 Versatile Mount	LTC 9226/00
for LTC 9216 and LTC 9222, 45.3 kg (100 lb) max load, corner mount bracket, light gray finish	

LTC 9440 Series Weatherproof Outdoor Pan/Tilts



Features

- ▶ **Maximum load - 18 kg (40 lb)**
- ▶ **Low profile, compact size**
- ▶ **Feed-through wiring models**
- ▶ **100% Duty cycle motors**
- ▶ **Upright or inverted operation**
- ▶ **Pre-position models available**

The LTC 9440 Series Weatherproof Pan/Tilts are low profile, compact units constructed with corrosion-resistant hardware. These remote positioning devices are rated for a maximum load of 18 kg (40 lb), and are fully system compatible with CCD cameras, lenses, and housing combinations. The LTC 9440 Series features feed-through wiring for lens and camera power, video, and external sync connections.

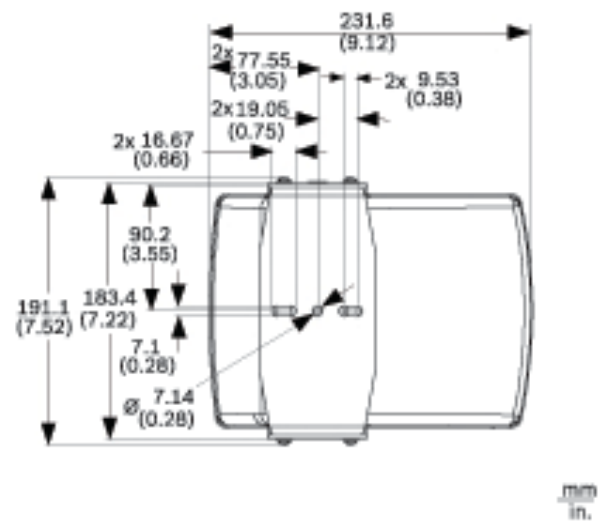
The 100% duty cycle motors permit continuous operation on all models. Low speed worm drives and flexible motor mounts offer quiet, smooth motion. The use of impedance and overload-protected motors, long life limit switches, and permanently lubricated bearings, reduces maintenance and provide reliable operation.

Certifications and Approvals

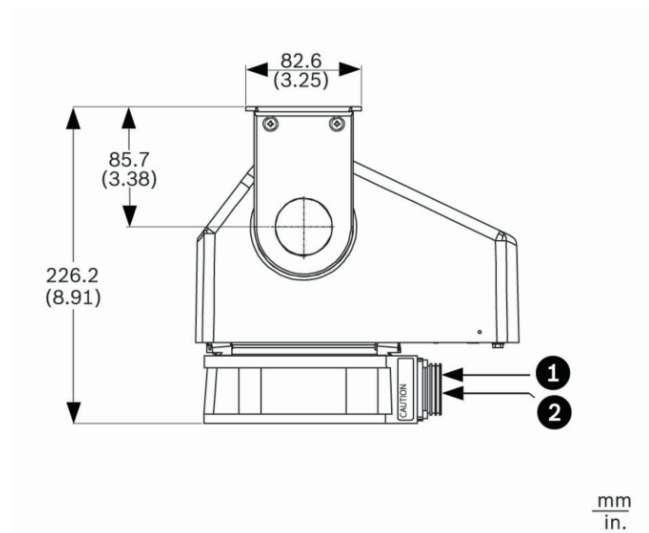
Product Safety

Complies with UL and CSA Standards

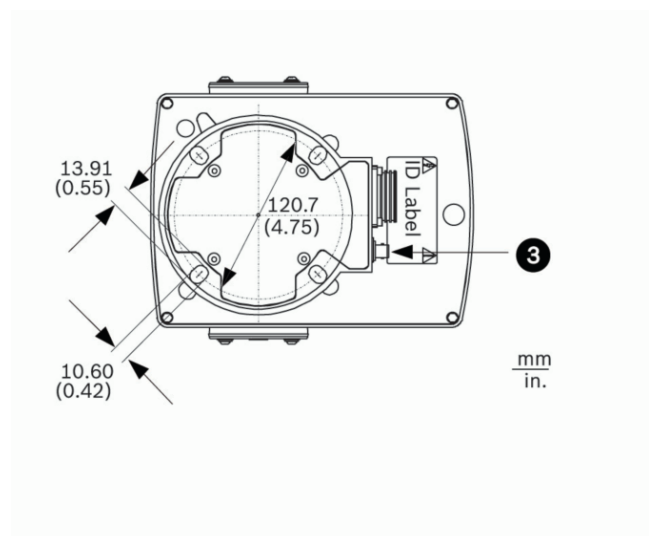
Installation/Configuration Notes



Top View



Side View



Bottom View

Reference #	Description
1	Ground screw (on other side of multi-pin connector)
2	Multi-pin connector
3	BNC connector

Technical Specifications

Electrical

LTC 9440/00	Non-feed-through models
Model Number ¹	Rated motor voltage and voltage range
Standard Models - 0° to 345°	
LTC 9440/60	120 VAC, 60 Hz, 108 to 132
LTC 9440/20	24 VAC, 60 Hz, 23 to 26.4
Pre-position Models - 0° to 345°	
LTC 9440/61	120 VAC, 60 Hz, 108 to 132
LTC 9440/21	24 VAC, 60 Hz, 23 to 26.4
Connectors	
Power	Via 24-pin connector on base
Ground	Screw connection for grounding on base

1 The total power for all models, with both motors running, is 20 W.

Electrical

LTC 9441 Series	Feed-through models
Model Number ²	Rated motor voltage and voltage range
Standard Model - 0° to 345°	
LTC 9441/20	24 VAC, 60 Hz, 23 to 26.4
Pre-position Model - 0° to 345°	
LTC 9441/21	24 VAC, 60 Hz, 23 to 26.4
Connectors	
Power	Via 24-pin connector on base, through to 3-conductor cable on pan head
Ground	Screw connection for grounding on base
Lens and Accessories	Via 24-pin connector on base, through to 10-conductor cable on pan head
Video	Via BNC connector on base, through to flying lead coax on pan head

2 The total power for all models, with both motors running, is 20 W.

LTC 9440 and LTC 9441 Series

Recommended Maximum Cable Lengths

Model Voltage	Wire Size		Distance ³	
	mm ²	AWG	m	ft
24 VAC	0.5	20	140	43
	1	18	230	70
	1.5	16	360	110
	2.5	14	590	180
	4	12	940	287
120 VAC ⁴	0.5	20	2200	671

Recommended Maximum Cable Lengths

1	18	3500	1067
1.5	16	5500	1677
2.5	14	9000	2744

3 Values calculated at 20°C (68°F), using stranded tinned copper wire common ground (neutral), and with both PAN and TILT motors operating simultaneously.

4 For 24 VAC models operating at or near -30°C, values are based upon maintaining the supplied voltage within the voltage range specified.

Mechanical

Mounting	These units are designed for either upright or inverted installations. To maintain weather-proof integrity when mounting outdoors in an inverted position, the unit must be installed in a weatherproof enclosure (e.g., weather-proof domed housing), or in a protected outside area. They may only be mounted upright or inverted; never horizontally.
Pan Range (movement in horizontal plane)	0° to 345° maximum
Pan Speed Tilt (movement in vertical plane)	7°/sec
120 VAC Models	+30° to -90° from horizontal
24 VAC Models	+30° to -90° from horizontal at specified temperature range and 23.0 to 26.4 VAC range +30° to -75° from horizontal at specified temperature range and 21.6 to 22.9 VAC range
Tilt Speed	1.2°/sec
Maximum Load	292 kg-cm (260 lb-in.) torque or 18 kg (40 lb) at a distance of 123 mm (3.1 in.) from the center of mass of the camera/lens/housing assembly, to the center of the tilt table
Construction	Cast aluminum base and yoke, corrosion-resistant plastic cover
Finish	Light gray
Weight	7.05 kg (15.5 lb)

Environmental

Operating Temperature

24 VAC Models (23 to 26.4 operating V)	-30°C to 50°C (-22°F to 122°F)
120 VAC Models (108 to 119 operating V)	-30°C to 50°C (-22°F to 122°F)
120 VAC Models (120 to 132 operating V)	-45°C to 50°C (-49°F to 122°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F)
Vibration	3 g Swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 ms, 1/2 sine
Enclosure	Tested to NEMA-3 requirements (upright mounting) IP54 design

Ordering Information

LTC 9441/21 Weatherproof Pre-position Pan/Tilts	LTC 9441/21
Max. load 18 kg, 24 VAC, 60 Hz, feed-through-wiring	

Accessories

LTC 9212/00 Wall Mount for 12-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, light gray finish	LTC 9212/00
LTC 9210/00 Column Mount for 8-inch, 9 kg (20 lb) max load, light gray finish	LTC 9210/00
LTC 9223/00 Column Mount for 24-inch, 9 kg (20 lb) max load, light gray finish	LTC 9223/00
LTC 9213/01 Pole Mount Adapter for LTC 9210, LTC 9212 and LTC 9215, light gray finish	LTC 9213/01
LTC 9219/01 Feed-through J-Mount for 15-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, light gray finish	LTC 9219/01
LTC 9215/00S Short Wall Bracket for 7-inch, 9 kg (20 lb) max load, for LTC 938x and LTC 948x series housings, feed-through version, light gray finish	LTC 9215/00S
LTC 9215/00 Wall Bracket for 12-inch, 9 kg (20 lb) max load, for LTC 9380 and LTC 948x series housings, feed-through version, light gray finish	LTC 9215/00
LTC 9222/00 Versatile Mount for 22-inch, 90.6 kg (200 lb) max load, light gray finish	LTC 9222/00
LTC 9216/00 Versatile Mount for 16-inch, 45.3 kg (100 lb) max load, light gray finish	LTC 9216/00
LTC 9224/00 Versatile Mount for 24-inch, 90.6 kg (200 lb) max load up-right, light gray finish	LTC 9224/00
LTC 9228/00 Versatile Mount for LTC 9216/00 and LTC 9222/00 wall mounts, 45.3 kg (100 lb) max load, flange bracket	LTC 9228/00
LTC 9214/00 Versatile Mount for 14-inch, 90.6 kg (200 lb) max load up-right, light gray finish	LTC 9214/00
LTC 9227/00 Versatile Mount for LTC 9216 and LTC 9222/00, 45.3 kg (100 lb) max load, adjustable head, light gray finish	LTC 9227/00
LTC 9226/00 Versatile Mount for LTC 9216 and LTC 9222, 45.3 kg (100 lb) max load, corner mount bracket, light gray finish	LTC 9226/00
LTC 9225/00 Pole Mount 45.3 kg (100 lb) max load, pole mount, light gray finish	LTC 9225/00

LTC 8x00/90 Integrated Series Allegiant Matrix/Control Systems



Features

- ▶ **Models from 8 cameras by 2 monitors to 32 cameras by 6 monitors**
- ▶ **Compact single bay construction**
- ▶ **Integral alarm interface and signal distribution**
- ▶ **Powerful alarm handling features**
- ▶ **SalvoSwitching® and SatelliteSwitch® capability**
- ▶ **PC-based software package available**

The LTC 8100 Series, LTC 8200 Series, and LTC 8300 Series Allegiant® video switcher/control systems combine both switching and computer technology to provide powerful performance and unique system features for the security user. Offering full matrix switching capability, these systems can be programmed to display the video from any camera on any monitor, either manually or via independent automatic switching sequences.

These systems provide from 8 camera inputs, 2 monitor outputs to 32 camera inputs, 6 monitor outputs, 2 to 4 keyboards, 8 to 32 direct connect alarm input points, an integral signal distribution unit, and a computer interface port. A logging printer port is available in the LTC 8300 Series systems.

These systems can be programmed with up to 60 sequences which can be run independently of each other in either a forward or reverse direction.

Any of the sequences can utilize the SalvoSwitching capability where any number of system monitors may be selected to switch as a group. Using the optional LTC 8059/00 Master Control Software package or the LTC 8850/00 Graphical User Interface software package, sequences can be made to activate and deactivate automatically based upon the time of day and the day of week.

Utilizing the unit's integral signal distribution ports, connections to on-site receiver/drivers are easily made. On-site receiver/drivers provide operator control of pan, tilt, zoom; multiple pre-positions; four auxiliaries; auto-pan, and random scan. These systems also support variable speed operation and full programming functions of AutoDome® Series dome cameras.

When combined with an LTC 8016 Allegiant Bilinx™ Data Interface unit, these switcher/controllers support operations using Bilinx communication. With Bilinx, PTZ control is accomplished using a bidirectional communication protocol embedded in the video signal of Bosch Dinion™ and AutoDome® CCTV cameras. In addition, Bilinx uses the standard video cable to transmit alarm and status messages from the cameras, providing superior performance without the need for separate data transmission cables.

With their built-in alarm interface capability, an external contact closure or logic level can be used to automatically activate any camera to be displayed. Any monitor or group of monitors can be set to display cameras under alarm conditions. The base system contains three built in alarm response modes: basic, auto-build, and sequence & display. In addition to these three modes, the PC-based software packages offer the ability to combine any or all of the three standard modes within the same system. Alarm video may be selected to reset either manually or automatically. In addition, a 16-character alarm title can be selected to appear instead of the camera title during alarm conditions.

System operation and programming is accomplished using a full-function, ergonomically designed keyboard (sold separately). Built-in operator priority levels and the ability to restrict certain operators from controlling designated functions provide maximum flexibility.

These systems include a black outlined 48-character on-screen display for time-date, camera number, camera ID (16-characters), an icon to identify controllable cameras, and monitor (12-characters) or status information. Over 235 characters are available when programming camera ID and monitor titles.

Utilizing a Windows®-based PC and the optional LTC 8059/00 Master Control Software package or LTC 8850/00 GUI software, enhanced programming and switching features can be obtained. A user-friendly spreadsheet format provides the ability to enter camera and monitor titles, program of operator names and priorities, 64 timed event actions, change system

parameters, program camera sequences, install lockouts, and access the advanced alarm handling screens with speed and efficiency. The programmed information may then be transferred into the Allegiant system, stored on disk, or printed out directly from a printer connected to the PC.

The LTC 8850/00 Bosch GUI software is designed around an intuitive graphic-based interface. The GUI provides high performance programming, control and monitoring of all system functions by using on-screen icons to reflect real time status of the devices controlled by the system. The LTC 8850/00 GUI software also provides the ability to monitor system status events. System alarms, switching functions, sequence events, keyboard actions, and video loss information can be viewed in real time on the PC screen and, if desired, logged to the PC hard drive.

The software also provides the ability to enable an on-screen indicator for easy identification of controllable cameras.

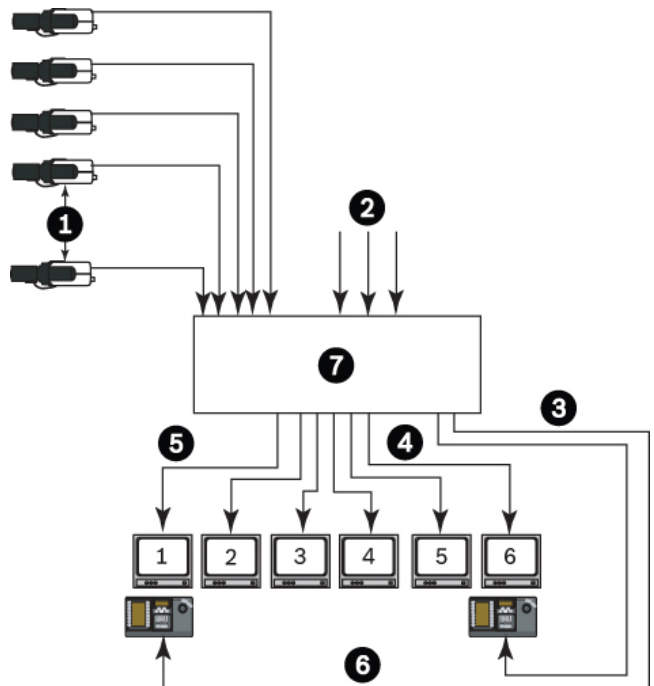
The LTC 8300 Series contain a logging printer output port which accepts a standard RS 232 serial printer. This provides a permanent record of system status showing time and date for changes such as: incoming alarms, acknowledgment of alarms, sequence loading, user log-on to keyboard, transfer of system tables and sequences, video loss messages, and a power up reset message. In addition, the printer can be used to obtain a hard copy of the system's configuration tables and sequences.

These systems provide powerful macro capabilities. The macros can be activated using Allegiant Series keyboards, system time event functions, alarm activations, and via special function icons in the LTC 8850/00 GUI software.

These systems can serve as the master switcher in a SatelliteSwitch® configuration. This innovative SatelliteSwitch feature enables a single system to communicate with remotely located "Satellite" systems. Any Allegiant model can serve as a master or remote Satellite switcher. This powerful feature permits the design of a distributed matrix video switching system with control at one central location and individual control at the local sites. The main control site can view/control local cameras plus cameras located at any of the remotely distributed Satellite sites. The Satellite sites can view/control only cameras associated with their own site. When used in this type of configuration, the main system can access up to 256 cameras located anywhere in the system.

Windows is a registered trademark of Microsoft Corp.

Installation/Configuration Notes

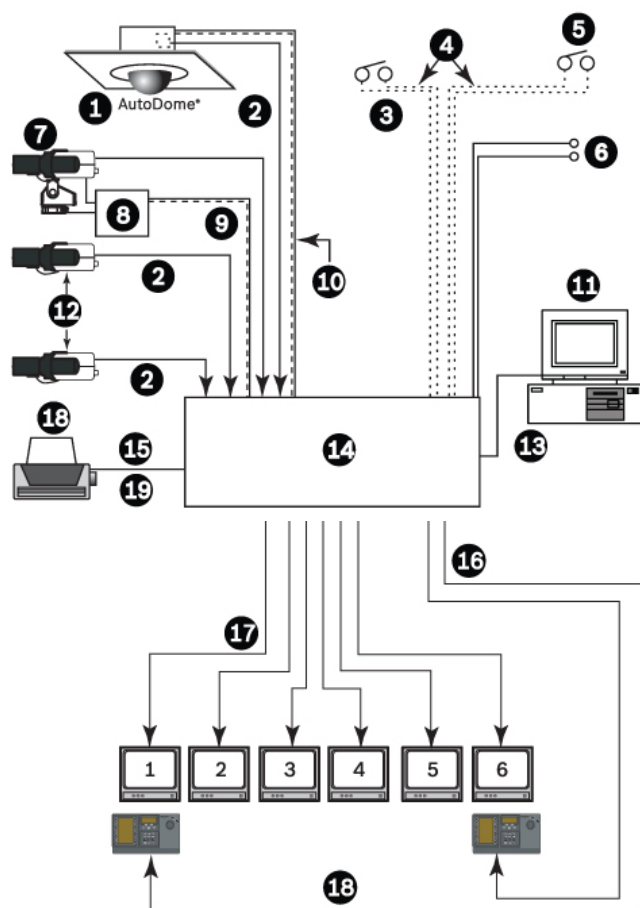


Typical LTC 8300 Series Configuration Diagram

- 1 Additional System Cameras
- 2 Up to 32 Video Inputs Maximum
- 3 3 m (10 ft) Interconnect Cable Supplied with Keyboard
- 4 Video Coax
- 5 Up to six (6) Monitor Outputs
- 6 Maximum of four (4) Allegiant Series Full Function Keyboards up to 1.5 km (5000 ft) Away Using Optional Remote Hookup Kit
- 7 LTC 8300 Series Main CPU Bay

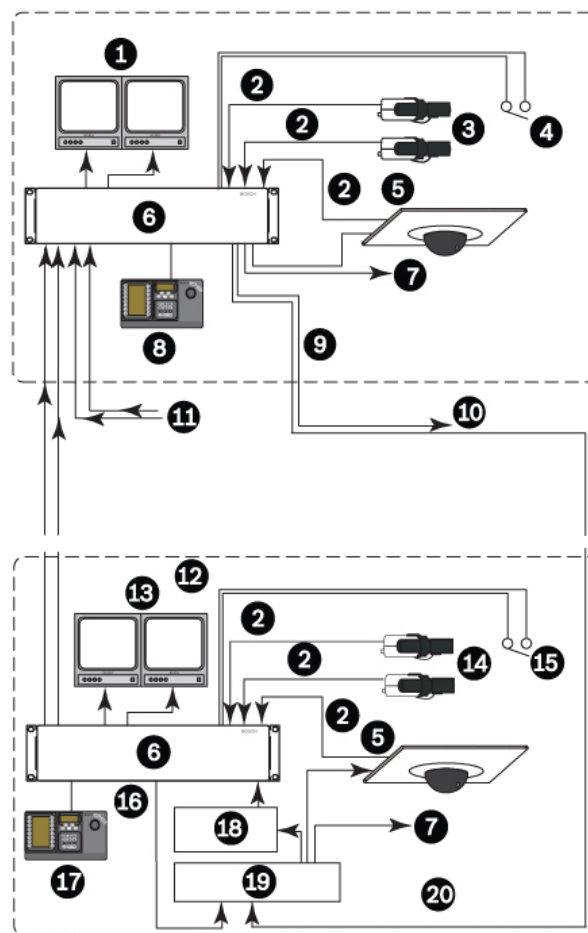
Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards



*LTC 8300 Series Full Capacity Configuration Diagram
(32 Cameras by 6 Monitors)*

- 1 Typical AutoDome Camera
- 2 Video Coax
- 3 Twisted-Pair Typical
- 4 32 Separate Alarm Inputs
- 5 Contact Closure or Active Low Logic Level
- 6 Six (6) Pairs of Relay Outputs
- 7 Pan and Tilt
- 8 Receiver/Driver
- 9 Up to 32 Receiver/Driver Units
- 10 Up to 1.5 km (5000 ft) Using 18 AWG Shielded Twisted Pair Cable (Belden 8786 or Equivalent)
- 11 Optional LTC 8059/00 MCS or LTC 8850/00 GUI Software Package can be Run on a Windows® based PC
- 12 Additional System Cameras
- 13 3 m (10 ft) RS-232 Interface Cable provided with Optional Software Package
- 14 LTC 8300 Series Main CPU Bay
- 15 Serial RS-232 Logging Printer Capability
- 16 3 m (10 ft) Interconnect Cable Supplied with Keyboard
- 17 Up to six (6) Monitor Outputs
- 18 Maximum of 4 Allegiant Series Full-Function Keyboards up to 1.5 km (5000 ft) Using Optional Remote Hookup Kit



Typical Main Allegiant Control Center

- 1 Typical System Monitors (Local and/or Remote Video)
- 2 Video
- 3 Typical Fixed Cameras
- 4 Typical Alarm Input Contact to Activate Local or Satellite Cameras
- 5 Typical Controllable Camera
- 6 Typical LTC 8100, LTC 8200, or LTC 8300 Allegiant System
- 7 Bi-Phase Data Lines to All Local PTZ Camera Sites
- 8 Typical IntuiKey Keyboard
- 9 Bi-Phase Control and Satellite Switching Data
- 10 One (1) Bi-Phase Data Line to Each Remote Satellite Site
- 11 Incoming Video TRUNK Lines From All Satellite Sites
- 12 Typical Allegiant Satellite Site
- 13 Typical Local Monitors (Local Video Only)
- 14 Typical Fixed Cameras
- 15 Typical Alarm Input Contact (For Local Alarms Only)
- 16 Bi-Phase Data
- 17 IntuiKey Keyboard (PTZ Control of Local Cameras Only)
- 18 LTC 8780 Data Converter
- 19 LTC 8569 Code Merger
- 20 Bi-Phase Control + Satellite Data

Technical Specifications

System

Capacities

Model No.	LTC 8100	LTC 8200	LTC 8300
Video Inputs (Standard)	8	16	32
Video Inputs (Looping)	8	16	32
Video Inputs (Satellite)	256	256	256
Video Outputs	2	5	6
Alarm Inputs	8	16	32
Alarm Outputs	2	5	6
Bi-Phase Outputs	8	12	16
Keyboards	2	4	4
RS-232 Ports (Console)	1	1	1
RS-232 Ports (Printer)	0	0	1
Receiver/Drivers (Standard)	8	16	32
Receiver/Drivers (Satellite)	256	256	256

Electrical

Input Voltage Level	0.5 Vp-p to 2 Vp-p (Composite Negative Sync)
Gain	Unity \pm 2% (75 Ohm terminated)
Pulse/Bar Ratio ¹	94% to 106%
2T Pulse K Factor ¹	2.5% maximum
Bar Amplitude ¹	96% to 106%
Field Time Waveform Distortion ¹	2% maximum
Line Time Waveform Distortion ¹	1% maximum
Short Time Waveform Distortion ¹	2% maximum
Video Bandwidth (-3 dB) ²	22 MHz
Frequency Response ²	\pm 1.0 dB to 10.5 MHz
Signal-to-Noise ¹	60 dB at 3.58 MHz unweighted minimum (Typical at 3.58 MHz)
Crosstalk (Adjacent Channel)	-52 dB at 3.58 MHz
Differential Gain ¹	2% maximum
Differential Phase ¹	1.3° maximum
Chrominance Luminance Gain ¹	96% to 104%
Chrominance Nonlinear Phase ¹	2° maximum
Luminance Nonlinearity ¹	4% maximum
Switching	Crosspoint matrix
DC Output	0 V

¹ Meets EIA/TIA - 250C Medium Haul Standard.

² One camera to one monitor.

Environmental

Operating Temperature	4°C to 55°C (40°F to 131°F)
Storage Temperature	-40°C to 60°C (-40°F to 140°F)
Altitude	4500 m (15,000 ft)
Humidity	0% to 95% relative, non-condensing

LTC 8100, LTC 8200, LTC 8300 Series Bay

Electrical

Model No.	Voltage Range	Nominal Power ²
LTC 8100/90	108 to 253 VAC, 50/60 Hz	15 W
LTC 8200/90	108 to 253 VAC, 50/60 Hz	17 W
LTC 8300/90	108 to 253 VAC, 50/60 Hz	18 W

² Power at rated voltage fully loaded.

Connectors

Video Inputs and Monitor Outputs	BNC
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Looping Video Connections

LTC 8100 Series	8 BNC
LTC 8200 Series	One 34-pin ribbon connector used with the LTC 8808/00 video inter-connect panel (not included)
LTC 8300 Series	Two 34-pin ribbon connectors used with the LTC 8808/00 video inter-connect panel (not included)

External Accessory Interfaces

CONSOLE	RS-232 port for external PC or control interface (default = 19,200 baud) 9-pin D-type connector
ALARMS	Inputs use removable screw terminal connectors. Relay outputs provide alarm output connections. (Contact rating = 1.5 A at 30 VDC)
PRINTER (LTC 8300 Series only)	RS-232 port for system logging printer (Default = 19,200 baud) 9-pin D-type connector
BIPHASE OUT	Multiple ports provide receiver/driver connections when used in a daisy chain configuration. Removable screw terminal connector blocks.
KEYBOARDS	6-pin RS-485 ports for Allegiant keyboard use

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal

Dimensions

LTC 8100, LTC 8200 Series (H x D x H)	440 x 305 x 40 mm (17.3 x 12 x 1.7 in.)
LTC 8300 Series (H x D x H)	440 x 305 x 89 mm (17.3 x 12 x 3.5 in.)

Weight

• LTC 8100, LTC 8200 Series	4 kg (8.8 lb)
• LTC 8300 Series	4.8 kg (10.7 lb)
Rack Mount (Integral)	Brackets for mounting one unit in a 48 cm (19 in.) EIA rack
• LTC 8100, LTC 8200 Series	One (1) standard rack unit high
• LTC 8300 Series	Two (2) standard rack units high

Accessories

The Allegiant accessory products provide many optional features to the base Allegiant switching systems. Accessory products include keyboards, keyboard extension kits, Allegiant Bilinx Data Interface unit, receiver/driver units, switcher/followers, and code merger units. All accessory products are designed to be installer-friendly and compatible throughout the Allegiant series systems. See the Allegiant Accessories datasheet.

Ordering Information

LTC 8100/90 Allegiant Matrix Switcher	LTC 8100/90
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8 camera inputs/2 monitor outputs, incl. Bi-phase outputs and alarm contacts, 108 to 253 VAC, 50/60 Hz	
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LTC 8200/90 Allegiant Matrix Switcher	LTC 8200/90
--	--------------------

16 camera inputs/5 monitor outputs, incl. Bi-phase outputs and alarm contacts, 108 to 253 VAC, 50/60 Hz	
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LTC 8300/90 Allegiant Matrix Switcher	LTC 8300/90
--	--------------------

32 camera inputs/6 monitor outputs, incl. Bi-phase outputs and alarm contacts, 108 to 253 VAC, 50/60 Hz	
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Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
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LTC 8059/00 Allegiant Master Control Software	LTC 8059/00
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LTC 8500 Series Allegiant Matrix/Control Systems - Modular



Features

- ▶ **64 Camera by 8 monitor switching**
- ▶ **8 Independent keyboards**
- ▶ **Modular construction**
- ▶ **Powerful alarm handling capabilities**
- ▶ **SalvoSwitching and SatelliteSwitch capability**
- ▶ **PC-based software package available**

The LTC 8500 Series Allegiant Video Switcher/Control Systems combine both switching and computer technology to provide powerful performance and unique system features for the security user. Offering full matrix switching capability, these systems can be programmed to display the video from any camera on any monitor, either manually or via independent automatic switching sequences.

The LTC 8500 Series provide versatile modular construction accommodating up to 64 camera inputs, 8 monitor outputs, 8 keyboards, 128 alarm points, a computer interface port, and a logging printer port.

Functions

Sequencing Capabilities

These systems can be programmed with up to 60 sequences which can be run independently of each other in either a forward or reverse direction. Any of the sequences can utilize the Salvo Switching capability where any number of system monitors may be selected to switch as a group. Using the optional LTC 8559/00 Master

Control Software package or LTC 8850/00 GUI Allegiant Server, sequences can be made to activate and deactivate automatically based upon the time of day and the day of week.

Camera Control

On-site receiver/drivers permit operator control of pan, tilt, zoom, multiple pre-positions, four auxiliaries, auto-pan, and random scan. An integral local test function is also a standard feature. The LTC 8500 Series also supports variable speed operation and full programming functions of AutoDome series dome cameras.

Bilinx® Capability

When combined with an LTC 8016 Allegiant Bilinx Data Interface unit, these switchers/controllers support operations using Bilinx communication. With Bilinx, PTZ control is accomplished using a bi-directional communication protocol embedded in the video signal of Bosch Dinion and AutoDome® CCTV cameras. In addition, Bilinx uses the standard video cable to transmit alarm and status messages from the cameras, providing superior performance without the need for separate data transmission cables.

Macro Capabilities

The LTC 8500 system provides powerful macro capabilities. The macros can be activated using Allegiant system keyboards, system time event functions, alarm activations, and via special function icons in the LTC 8850/00 GUI software.

Alarm Capabilities

With the addition of the LTC 8540/00 Series alarm interface accessory unit, an external contact closure or logic level can be used to automatically activate any camera to be displayed. Any monitor or group of monitors can be set to display cameras under alarm conditions. The base system contains three built-in alarm response modes: basic, auto-build, and sequence and display. In addition to these three modes, the PC based software packages now includes the ability to combine any or all three standard modes within the same system. Alarm video may be selected to reset either manually or automatically. In addition, a 16-character alarm title can be selected to appear instead of the camera title during alarm conditions.

System Operation

System operation and programming is accomplished using a full-function, ergonomically designed keyboard. Up to 8 keyboards may be used in the system. Built-in operator priority levels and the ability to restrict certain operators from controlling designated functions provide maximum flexibility.

Programming/Software Capabilities

The LTC 8500 Series includes a 48-character on-screen display for time-date, camera number, camera ID (16 characters), an icon to identify controllable cameras, and monitor (12 characters) or status information. Over 250 characters are available when programming camera ID and monitor titles.

Utilizing a Windows-based PC and the LTC 8059/00 Master Control Software package or LTC 8850/00 Graphical User Interface (GUI) software, enhanced programming and switching features can be obtained. A user-friendly spreadsheet format provides the ability to enter camera titles, operator names, 64 timed events, change system parameters, program camera sequences, install lockouts, and access the advanced alarm handling screens with speed and efficiency. The program information may then be transferred into the Allegiant system, stored on disk, or printed out directly from a printer connected to the PC.

The LTC 8850/00 Bosch GUI software is designed around an intuitive graphic-based interface; the GUI provides high performance programming, control and monitoring of all system functions by using on-screen icons to reflect real time status of the devices controlled by the system.

The LTC 8850/00 GUI software also provides the ability to monitor system status events. System alarms, switching functions, sequence events, keyboard actions, and video loss information can be viewed in real time on the PC screen and, if desired, logged to the PC hard drive.

The LTC 8500 Series contains a logging printer output port which accepts a standard RS-232 serial printer. This provides a permanent record of system status showing time and date of changes, such as: incoming alarms, acknowledgment of alarms, loading of sequences, user log-on to keyboard, transfer of system tables and sequences, and a power up reset message. In addition, the printer can be used to obtain a hard copy of the system's configuration tables and sequences.

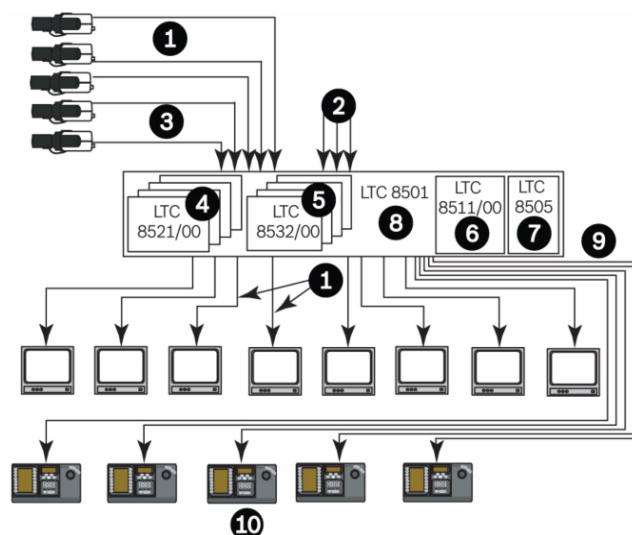
Expansion Capabilities

The LTC 8500 Series can serve as the Master switcher in a SatelliteSwitch configuration. This innovative SatelliteSwitch feature enables a single LTC 8500 Series system to communicate with up to 64 remotely located "Satellite" systems. Any Allegiant system model can serve as a remote Satellite switcher. This powerful feature permits the design of a distributed type system. The main control site can view/control local cameras plus cameras located at any of the remotely distributed Satellite sites. The Satellite sites can view/control only cameras associated with their own site. When used in this type of configuration, the main LTC 8500 Series system can access up to 256 cameras located anywhere in the system.

Certifications and Approvals

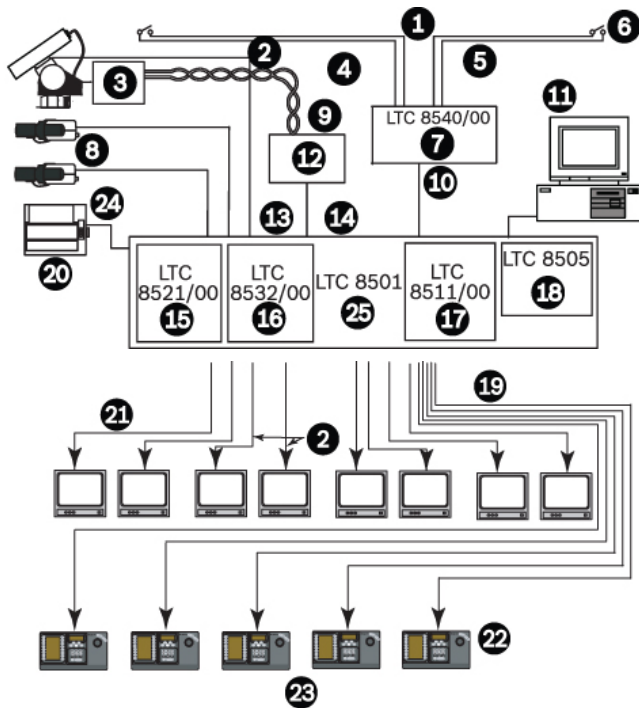
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



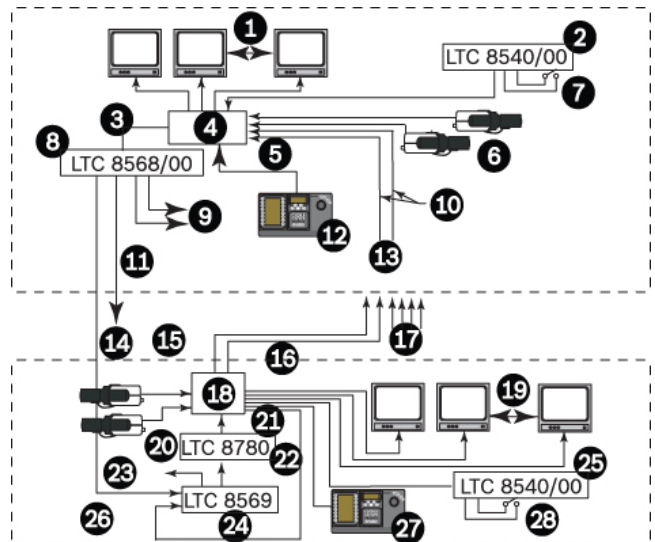
*LTC 8500 Series Configuration Diagram
(64 Cameras by 8 Monitors)*

- 1 Video Coax
- 2 Up to 64 Maximum Video Inputs
- 3 Additional System Cameras
- 4 8 x 8 Channel Input Cards
- 5 4 x 2 Channel Output Cards
- 6 CPU Module
- 7 Power Supply Module
- 8 Main CPU Bay
- 9 3 m (10 ft) Interconnect Cable Supplied with Keyboard
- 10 Maximum of 8 Full Function Keyboards up to 1.5 km (5000 ft) away using Optional Remote Hook-up Kit



LTC 8500 Series Full Capacity Configuration Diagram

- 1 64 Separate Alarm Inputs
- 2 Video Coax
- 3 Up to 64 On-Site LTC 8561 Receiver/Driver Units
- 4 Up to 1.5 km (5000 ft) using 18 AWG shielded twisted pair cable (Belden 8760 or equiv.)
- 5 Twisted Pair, Typical
- 6 Contact closure or active low logic level
- 7 Alarm Interface Unit
- 8 Additional System Cameras
- 9 32 Separate Outputs
- 10 2 m (6 ft) Interconnect Cable Supplied with LTC 8540/00 Series, providing Data and Power Connections
- 11 Optional LTC 8059/00 Software Package can be run on a Windows based PC
- 12 Signal Distribution Unit
- 13 Up to 64 Video Inputs Maximum
- 14 2 m (6 ft) Interconnect Cable Supplied with LTC 8568/00 Series, providing Data and Power Connections
- 15 8 x 8 Channel Input Cards
- 16 4 x 2 Channel Output Cards
- 17 CPU Module
- 18 Power Supply Module
- 19 3 m (10 ft) Interface Cable Provided with Optional LTC 8059/00 Software Package
- 20 Serial Logging Printer Capability
- 21 8 Monitor Output Capability
- 22 3 m (10 ft) Interconnect Cable Supplied with Keyboard
- 23 Maximum of 8 Full Function Keyboards Up to 1.5 km (5000 ft) away using Optional Remote Hook-up Kit
- 24 RS-232 Data
- 25 Main CPU Bay



Satellite System Using LTC 5112- or LTC 5124-Series Switchers

- 1 Monitor Outputs
- 2 Alarm Interface Unit
- 3 Pan/Tilt/Zoom and Satellite Control Data
- 4 Allegiant Main CPU Bay
- 5 Inputs Used for Both Local and Trunk Lines
- 6 Local Camera Video Inputs
- 7 Alarm Inputs May Activate Either Local or Satellite Video on Main Control Center's Monitor
- 8 Signal Distribution Unit
- 9 To Any Local PTZ Camera Sites
- 10 Multiple Video Coax
- 11 Up to 1.5 km (5000 ft) Using 1 sq mm (18 AWG) Shielded Twisted Pair (Belden 8760 or Equivalent)
- 12 Allegiant Keyboard controls any local or remote camera on any local monitor (Video and PTZ)
- 13 Multiple Video Trunk Lines From Each Remote Satellite Location
- 14 One Line to Each Remote Satellite System Location
- 15 Pan/Tilt/Zoom and Satellite Control Data
- 16 Monitor Outputs Used As Video Trunk Lines to Main Control Site
- 17 Video Trunk Lines From Other Satellite Locations
- 18 Any Model Allegiant Main Bay
- 19 Local Monitors
- 20 Satellite Data Line
- 21 Console Port Input
- 22 Data Converter Units
- 23 To Any Local PTZ Camera Sites
- 24 Code Merger Unit
- 25 Alarm Interface Unit
- 26 Local PTZ Control Data Line
- 27 Allegiant Keyboard controls any local or remote camera on any local monitor (Video and PTZ)
- 28 Alarm Inputs Activate Only Local Video on Local Monitors

Technical Specifications

Capacities

Video Inputs	Standard: 64 Satellite configuration: 256
Video Outputs	8
Keyboards	8
Alarm Inputs	128
Receiver Drivers	Standard: 64 Satellite configuration: 256

Electrical

Video Bandwidth (-3 dB)	8 MHz typical
Differential Gain	3% maximum
Differential Phase	3° maximum
K Factor	0.5%
Signal-to-Noise-Ratio	60 dB minimum
Crosstalk (Input Isolation)	70 dB Typical at 3.58 MHz
Feed through (Input to Output Isolation)	50 dB Typical at 3.58 MHz
Gain	Unity (into 75 Ohm termination)
Tilt	1% Typical

Environmental

Temperature

Operating	0°C to 50°C (32°F to 122°F)
Storage	-40°C to 60°C (-40°F to 140°F)
Altitude	3000 m (10,000 ft)
Humidity	0 to 95% relative, non-condensing
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 m/s, 1/2 sine wave

LTC 8501 Series Equipment Bay

Includes LTC 8501/00 equipment rack, LTC 8511/00 microprocessor module, and LTC 8505 Series power supply.

Power Model No.	Rated Voltage	Voltage Range	Nominal Power ¹
LTC 8501/60	120 VAC, 50/60 Hz	100 to 140	192 W
LTC 8501/50	220-240 VAC, 50/60 Hz	198 to 264	192 W

1. Power at rated voltage fully loaded.

Connectors

Video Inputs	1 to 64, 1 Sync input, and 8 monitor inputs
Outputs	BNC

External Accessory Interfaces

9-pin D-type Connectors

Console	RS-232 port for external PC or control interface (default = 1200 baud)
Alarm	RS-232 port for Allegiant alarm accessory units (default = 1200 baud)
Printer	RS-232 port for system logging printer (default = 1200 baud)
SDA	TTL level, high-speed control data output (Bi-Phase) for interface to Allegiant series signal distribution units (data clock rate = 31.25 kHz)
Keyboards	Eight 6-pin RS-485 ports for Allegiant keyboard use (default = 9600 baud)

Equipment Rack

Size (W x D x H)	EIA 48 cm (19 in.) rack 483 x 356 x 178 mm (19 x 14 x 7 in.)
Weight	8.2 kg (18.2 lb)

Construction/Finish

Top and Bottom	Steel
Front, Sides, and Back	Aluminum
Finish	Charcoal

Microprocessor Module (LTC 8511/00)

Size (D x H)	290 x 160 mm (11.5 x 6.25 in.)
Weight	0.34 kg (0.8 lb)

Power Supply

(LTC 8505/60-120 VAC, LTC 8505/50-220-240 VAC)

Size (W x D x H)	90 x 335 x 160 mm (3.46 x 13.2 x 6.25 in.)
Weight	4 kg (9 lb)
Indicators	One power On/Off, seven fuse alert, and one external sync LED

LTC 8521/00 Camera Input Module

Use up to eight (8) per equipment bay.

Camera Inputs	8
Size (D x H)	290 x 160 mm (11.5 x 6.25 in.)
Weight	0.23 kg (0.5 lb)

LTC 8532/00 Monitor Output Module

Use up to four (4) per equipment bay.

Monitor Outputs	2
Size (D x H)	290 x 160 mm (11.5 x 6.25 in.)
Weight	0.27 kg (0.6 lb)

Allegiant Accessories

The LTC 8500 Series accessory products provide many optional features to the base Allegiant switching systems. Accessory products include keyboards, keyboard extension kits, receiver/driver units, switcher/followers, and code merger units. All accessory products are designed to be installer-friendly and compatible throughout the Allegiant series systems. Refer to the Allegiant Accessories datasheet for complete details.

Ordering Information

LTC 8501/50 Allegiant Matrix Switcher up to 64 camera inputs, 8 monitor outputs, incl. single bay, CPU and power supply, 230 VAC, 50 Hz	LTC 8501/50
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LTC 8521/00 Camera Input Module for LTC 8500, 8 camera inputs per card	LTC 8521/00
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LTC 8532/00 Monitor Output Module for LTC 8500, 2 monitor outputs per card	LTC 8532/00
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Accessories

LTC 8511/00 Spare CPU Module for LTC 8501 bay	LTC 8511/00
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LTC 8505/50 Spare Power Supply for LTC 8501/50 bay, 230 VAC, 50 Hz	LTC 8505/50
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LTC 8505/60 Spare Power Supply for LTC 8501/60 bay, 115 V, 60 Hz	LTC 8501/60
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Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
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LTC 8059/00 Allegiant Master Control Software	LTC 8059/00
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LTC 8600 Series Allegiant Matrix/Control Systems - Modular



Features

- ▶ **128 Camera by 16 monitor switching**
- ▶ **Modular construction**
- ▶ **Powerful alarm handling capabilities**
- ▶ **SalvoSwitching and SatelliteSwitch capability**
- ▶ **PC-based software package available**
- ▶ **Economical single-bay design**
- ▶ **Two-digit site plus 4-digit camera ID mode**

The LTC 8600 Series Allegiant video switcher/control systems combine both switching and computer technology to provide powerful performance and unique system features for the security user. Offering full matrix switching capability, these systems can be programmed to display the video from any camera on any monitor, either manually or via independent automatic switching sequences.

Functions

General Construction

The LTC 8600 Series provide versatile modular construction accommodating up to 128 camera inputs, 16 monitor outputs, 16 keyboards, 512 alarm points, a computer interface port, and a logging printer port.

Sequencing Capabilities

These systems can be programmed with up to 60 sequences which can be run independently of each other in either a forward or reverse direction. Any of the sequences can utilize the SalvoSwitching capability where any number of system monitors may be selected to switch as a group. Using the optional LTC 8059/00 master control software package, sequences can be made to activate and deactivate automatically based upon the time of day and the day of week.

Camera Control

The LTC 8600 Series support variable speed operation and full programming access for AutoDome and AutoDome Easy II Series cameras. In addition, on-site receiver/drivers are available to provide operator control of pan, tilt, zoom, pre-positions, auxiliaries, auto-pan, and random scan functions when used with conventional pan/tilt devices. An integral local test function is also a standard feature.

The LTC 8600 Series include an impressive user-based priority system and a series of programmable lockout tables to limit operator access of remotely controlled devices. Operators can restrict control from lower priority operators either manually or automatically. When enabled to operate automatically, a built-in time-out period is user programmable.

Bilinx[®] Capability

When combined with an LTC 8016 Allegiant Bilinx Data Interface unit, these switcher/controllers support operations using Bilinx communication. With Bilinx, PTZ control is accomplished using a bidirectional communication protocol embedded in the video signal of Bosch Dinion, AutoDome, and AutoDome Easy II CCTV cameras. In addition, Bilinx uses the standard video cable to transmit alarm and status messages from the cameras, providing superior performance without the need for separate data transmission cables.

Alarm Capabilities

With the addition of the LTC 8540/00 Series alarm interface accessory units, an external contact closure or logic level can be used to automatically activate any camera to be displayed. Any monitor or group of monitors can be set to display cameras under alarm conditions. The base system contains three built in alarm response modes: basic, auto-build, and sequence and display. In addition to these three modes, the PC based software packages now includes the ability to combine any or all of the three standard modes within the same system. Alarm video may be selected to reset either manually or automatically. In addition, a 16-character alarm title can be selected to appear instead of the camera title during alarm conditions.

Programming/Software Capabilities

The LTC 8600 Series includes a black outlined 48-character on-screen display for time-date, camera number, camera ID (16-characters), an icon to identify controllable cameras, and monitor (12-characters) or status information. A user selectable option provides the ability to display a third line of on-screen text. This third line can be configured to display up to 24 additional camera title characters (40 characters total) or a 12-character monitor title.

The on-screen display is also user selectable to operate in "6-digit Camera ID" mode. When enabled, 2-digit "site numbers" are displayed in addition to the 4-digit camera number. The 2-digit site number feature is especially useful when groups of cameras are located in separate buildings, floors, or other common areas. Over 1000 characters are available when programming camera ID and monitor titles.

Utilizing a standard Windows®-based PC and the optional LTC 8059/00 Master Control Software package, enhanced programming and switching features can be obtained. A user-friendly spreadsheet format provides the ability to enter camera titles, operator names, 64 timed events, change system parameters, program camera sequences, install lockouts, and access the advanced alarm handling screens with speed and efficiency. The programmed information may then be transferred into the Allegiant system, stored on disk, or printed out directly from a printer connected to the PC.

The LTC 8600 Series contain a logging printer output port. This RS-232 serial interface can be connected to the serial port of a PC to provide a permanent record of system status showing time and date of changes such as: incoming alarms, acknowledgment of alarms, loading of sequences, user log-on to keyboard, transfer of system tables and sequences, video loss messages, and a power up reset message. In addition, lists of the system's configuration tables and sequences can be sent to the printer port. The LTC 8600 system provides powerful macro capabilities. The macros can be activated using Allegiant Series system keyboards, system time event functions, and alarm activations.

Expansion Capabilities

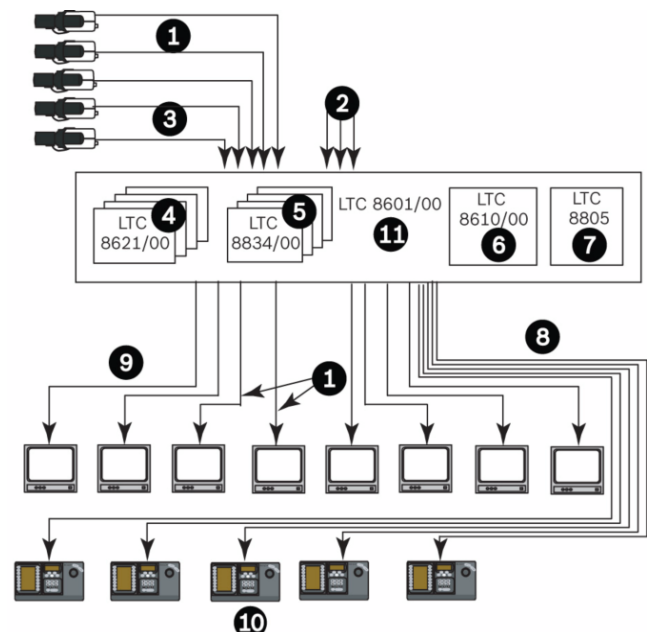
The LTC 8600 Series can serve as the Master Switcher in a SatelliteSwitch® configuration. This innovative SatelliteSwitch feature enables a single LTC 8600 Series system to communicate with remotely located "Satellite" systems. Any Allegiant system model can serve as a master or remote Satellite switcher. This powerful feature permits the design of a distributed matrix video switching system with control at one central location and individual control at the local sites. The main control site can view/control local cameras plus cameras located at any of the remotely distributed Satellite sites. The Satellite sites can view/control only cameras associated with their own site. When used in this type of configuration, the main LTC 8600 Series system can access up to 1024 cameras

located anywhere in the system. By combining multiple Satellite systems of this type, matrix sizes of 1024 cameras by 16 monitors can be designed in an extremely reliable, "Distributed Processing" configuration.

Certifications and Approvals

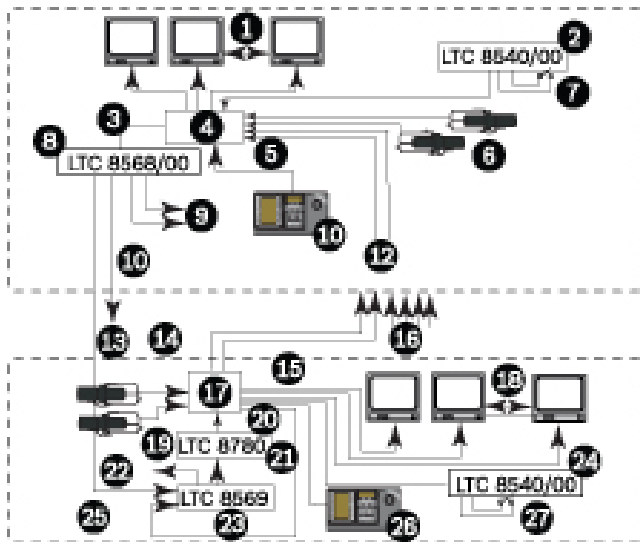
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations. This product also complies with EN 50121-4 railway application standards. Refer to www.boschsecurity.com website for link to applicable documents.
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



*LTC 8600 Series Configuration Diagram
(128 Cameras by 16 Monitors)*

- 1 Video Coax
- 2 Up to 64 Maximum Video Inputs
- 3 Additional System Cameras
- 4 Input Cards (max. 8)
- 5 Output Cards (max. 4)
- 6 CPU-Module
- 7 Power Supply Module
- 8 3 m (10 ft) Interconnect Cable Supplied with Keyboard
- 9 8 Monitor Output Capability
- 10 16 Full Matrix Monitor Outputs Maximum, 16 Full Function Keyboard Maximum
- 11 Main CPU Bay



Allegiant Satellite Switching System

- | | |
|--|--|
| 1 Monitor Outputs | 14 Pan/Tilt/Zoom and Satellite Control Data |
| 2 Alarm Interface Unit | 15 Monitor Outputs Used As Video Trunk Lines to Main Control Site |
| 3 Pan/Tilt/Zoom and Satellite Control Data | 16 Video Trunk Lines From Other Satellite Locations |
| 4 Allegiant Main CPU Bay | 17 Any Model Allegiant Main Bay |
| 5 Inputs Used for Both Local and Trunk Lines | 18 Local Monitors |
| 6 Local Camera Video Inputs | 19 Satellite Data Line |
| 7 Alarm Inputs May Activate Either Local or Satellite Video on Main Control Center's Monitor | 20 Console Port Input |
| 8 Signal Distribution Unit | 21 Data Converter Units |
| 9 To Any Local PTZ Camera Sites | 22 To Any Local PTZ Camera Sites |
| 10 Up to 1.5 km (5000 ft) Using 1 mm ² (18 AWG) Shielded Twisted Pair (Belden 8760 or Equivalent) | 23 Code Merger Unit |
| 11 Allegiant Keyboard controls any local or remote camera on any local monitor (Video and PTZ) | 24 Alarm Interface Unit |
| 12 Multiple Video Trunk Lines From Each Remote Satellite Location | 25 Local PTZ Control Data Line |
| 13 One Line to Each Remote Satellite System Location | 26 Allegiant Keyboard controls any local or remote camera on any local monitor (Video and PTZ) |
| | 27 Alarm Inputs Activate Only Local Video on Local Monitors |

Technical Specifications

LTC 8600 Series System Specifications

Capacities

Video Inputs	Standard: 128 Satellite configuration: 1024
Video Outputs	16
• Keyboards	16
• Alarm Inputs	512
Receiver/Drivers	Standard: 128 Satellite configuration: 1024

Electrical

Video Bandwidth (-3 dB)	12 MHz typical
Differential Gain	1% maximum
Differential Phase	2° maximum
K Factor	0.5%
Signal-to-Noise Ratio	70 dB minimum
Crosstalk (Input to Input Isolation)	-50 dB typical
Feedthrough (Input to Output Isolation)	45 dB typical
Gain	Unity ± 2% (into 75 Ohm termination)
Tilt	1% typical
Transient Protection (VIM Cards)	350 W Peak Pulse Power (tp = 8/20 µs)

Environmental

Temperature

- Operating 4°C to 50°C (40°F to 122°F)
- Storage -40°C to 60°C (-40°F to 140°F)

Altitude	4500 m (15,000 ft)
Humidity	0% to 95% relative, non-condensing
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 ms, 1/2 sine wave

Product Regulatory Compliance

LTC 8601 Series Equipment Bay

Includes equipment rack, LTC 8610/01 microprocessor module, and LTC 8805 Series power supply.

Power

Model No.	Rated Voltage	Voltage Range	Nominal Power ¹
LTC 8601/60	120 VAC, 50/60 Hz	100 to 140	200 W
LTC 8601/50	220-240 VAC, 50/60 Hz	198 to 264	200 W

1. Power at rated voltage fully loaded.

Connectors

Video Inputs 1 to 96	One (1) sync input, and 16 monitor outputs, BNC
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Video Connections 97 to 128	Two (2), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel
Looping Video Connections 1-128	Eight (8), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel

External Accessory Interfaces

Connectors

CONSOLE	9-pin D-type RS-232 port for external PC or control interface (Default = 19.2 k baud)
ALARM	9-pin D-type RS-232 port for Allegiant alarm accessory unit (Default = 19.2 k baud)
PRINTER	9-pin D-type RS-232 port for system logging printer (Default = 19.2 k baud)
SDA	9-pin D-type, TTL level, hi-speed control data output (Bi-Phase) for interface to Allegiant series signal distribution units (Data clock rate = 31.25 kHz)
COM PORT 1	9-pin D-type RS-485 port for external Allegiant accessory use
COM PORT 2	9-pin D-type RS-485 port for external Allegiant accessory use
KEYBOARDS	Eight (8), 6-pin RS-485 ports for Allegiant keyboard use

Equipment Rack

Size (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	11.1 kg (24.5 lb)
Construction/Finish	Top and bottom: steel front and sides back: aluminum
Finish	Charcoal

Microprocessor Module (LTC 8610/01)

Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.5 kg (1.1 lb)

Power Supply

(LTC 8805/60–120 VAC, LTC 8805/50–220-240 VAC)

Size (W x D x H)	67 x 360 x 247 mm (2.63 x 14.2 x 9.7 in.)
Weight	5.2 kg (11.5 lb)
Indicators	One power On/Off, ten fuse alert, and one external sync LED

LTC 8621/00 Camera Input Module

Use up to eight (8) per equipment bay.

Camera Inputs	16
Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.41 kg (0.9 lb)

LTC 8834/00 Monitor Output Module

Use up to (4) four per equipment bay.

Monitor Outputs	4
Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.41 kg (0.9 lb)

LTC 8808/00 Video Interconnect Panel

The LTC 8808/00 assembly contains an interconnect panel is used to convert 32 BNC connectors into two 16-channel ribbon cable connectors. The two 16-conductor ribbon cables (LTC 8809/00), designed especially for use with video signals, are used to interconnect the video between the panel and the LTC 8600 Series system. One LTC 8808/00 assembly is included at time of shipment and is required for system video inputs 97 to 128. In addition to being used for video inputs 97 to 128, the LTC 8808/00 assembly can also be ordered as an option to provide looping capability. One LTC 8808/00 (includes panel and two, ribbon cables) is required for each group of 32 cameras.

Finish	Charcoal
Size (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 42 x 44 mm (19 x 1.65 x 1.75 in.)

Weight

- Panel 0.54 kg (1.2 lb)
- Ribbon Cables (2) 0.3 kg (0.7 lb)

Allegiant Accessories

The LTC 8600 Series accessory products provide many optional features to the base Allegiant switching systems. Accessory products include keyboards, keyboard extension kits, receiver/driver units, switcher/followers, code merger units, Allegiant Bilinx Data Interface unit, video ribbon cables, and keyboard expansion units. All accessory products are designed to be installer-friendly and compatible throughout the Allegiant series systems. See the Allegiant Accessories datasheet.

Ordering Information

LTC 8601/50 Allegiant Matrix Switcher up to 128 camera inputs, 16 monitor outputs, incl. single bay, CPU and power supply, 230 VAC, 50 Hz	LTC 8601/50
LTC 8601/60 Allegiant Matrix Switcher up to 128 camera inputs, 16 monitor outputs, incl. single bay, CPU and power supply, 115 VAC, 60 Hz	LTC 8601/60
LTC 8621/00 Camera Input Module for LTC 8601, 16 video inputs per card	LTC 8621/00
LTC 8834/00 Video Output Module for LTC 8600 and LTC 8800, 4 video outputs per card	LTC 8834/00
Accessories	
LTC 8805/50 Spare Power Supply for LTC 8601/50 bay, 220-240 VAC, 50 Hz	LTC 8805/50
LTC 8805/60 Spare Power Supply for LTC 8601/60 bay, 120 VAC, 60 Hz	LTC 8805/60
LTC 8601/00 Equipment Rack (included)	LTC 8601/00

Ordering Information

Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
LTC 8059/00 Allegiant Master Control Software	LTC 8059/00

LTC 8800 Series Allegiant Matrix/Control Systems - Modular



Features

- ▶ **256 Camera by 64 monitor switching**
- ▶ **Expandable to larger matrix sizes**
- ▶ **Modular construction**
- ▶ **Powerful alarm handling capabilities**
- ▶ **SalvoSwitching and SatelliteSwitch capability**
- ▶ **PC-based software package available**
- ▶ **Two-digit site plus 4-digit camera ID mode**

The LTC 8800 Series Allegiant Video Switcher/Control Systems combine both switching and computer technology to provide powerful performance and unique system features for the security user. Offering full matrix switching capability, these systems can be programmed to display the video from any camera on any monitor, either manually or via independent automatic switching sequences.

Functions

General Construction

The LTC 8800 Series provide versatile modular construction, accommodating up to 256 camera inputs, 64 monitor outputs, 32 keyboards, 1024 alarm points, a computer interface port, and a logging printer port.

Sequencing Capabilities

These systems can be programmed with up to 60 sequences which can be run independently of each other in either a forward or reverse direction. Any of the sequences can utilize the SalvoSwitching capability, where any number of system monitors may be selected to switch as a group. Using the optional LTC 8059/00 master control software package, sequences can be made to activate and deactivate automatically based upon the time of day and the day of the week.

Camera Control

The LTC 8800 Series support variable speed operation and full programming access for AutoDome and AutoDome Easy II Series cameras. In addition, on-site receiver/drivers are available to provide operator control of pan, tilt, zoom, pre-positions, auxiliaries, auto-pan, and random scan functions when used with conventional pan/tilt devices. An integral local test function is also a standard feature.

The LTC 8800 Series include an impressive user-based priority system and a series of programmable lockout tables to limit operator access of remotely controlled devices. Operators can restrict control from lower priority operators either manually or automatically. When enabled to operate automatically, a built-in time-out period is user programmable.

Bilinx® Capability

When combined with an LTC 8016 Allegiant Bilinx Data Interface unit, these switcher/controllers support operations using Bilinx communication. With Bilinx, PTZ control is accomplished using a bidirectional communication protocol embedded in the video signal of Bosch Dinion, AutoDome, and AutoDome Easy II CCTV cameras. In addition, Bilinx uses the standard video cable to transmit alarm and status messages from the cameras, providing superior performance without the need for separate data transmission cables.

Alarm Capabilities

With the addition of the LTC 8540/00 Series alarm interface accessory unit, an external contact closure or logic level can be used to automatically activate any camera to be displayed. Any monitor or group of monitors can be set to display cameras under alarm conditions. The base system contains three built-in alarm response modes: basic, auto-build, and sequence and display. In addition to these three modes, the PC-based software packages now include the ability to combine any or all the three standard modes within the same system. Alarm video may be selected to reset either manually or automatically. In addition, a 16-character alarm title can be selected to appear instead of the camera title during alarm conditions.

System operation and programming is accomplished using a full-function, ergonomically designed keyboard. Up to 32 keyboards may be used in the system. Built-in operator priority levels and the ability to restrict certain operators from controlling designated functions provide maximum flexibility.

Programming/Software Capabilities

The LTC 8800 Series include a black outlined 48 character on-screen display for time/date, camera number, camera ID (16 characters), an icon to identify controllable cameras, and monitor (12 characters) or status information. A user selectable option provides the ability to display a third line of on-screen text. This third line can be configured to display up to 24 additional camera title characters (40 characters total) or a 12-character monitor title.

The on-screen display is also user selectable to operate in "6-digit Camera ID" mode. When enabled, 2-digit "site numbers" are displayed in addition to the 4-digit camera number. The 2-digit site number feature is especially useful when groups of cameras are located in separate buildings, floors, or other common areas. Over 1000 characters are available when programming camera ID and monitor titles.

Utilizing a standard Windows-based PC and the optional LTC 8059/00 Master Control Software package, enhanced programming and switching features can be obtained. A user friendly spreadsheet format provides the ability to enter camera titles, operator names, or 64 timed events; change system parameters; program camera sequences; install lockouts; and access the advanced alarm handling screens with speed and efficiency. The programmed information may then be transferred into the Allegiant system, stored on disk, or printed out directly from a printer connected to the PC.

The LTC 8800 Series contain a logging printer output port. This RS-232 serial interface can be connected to the serial port of a PC to provide a permanent record of system status showing the time and date of changes such as incoming alarms, acknowledgment of alarms, loading of sequences, user log-on to keyboard, transfer of system tables and sequences, video loss messages, and a power up reset message. In addition, lists of the system's configuration tables and sequences can be sent to the printer port.

The LTC 8800 system provides powerful macro capabilities. The macros can be activated using Allegiant Series system keyboards, system time event functions, and alarm activations.

Expansion Capabilities

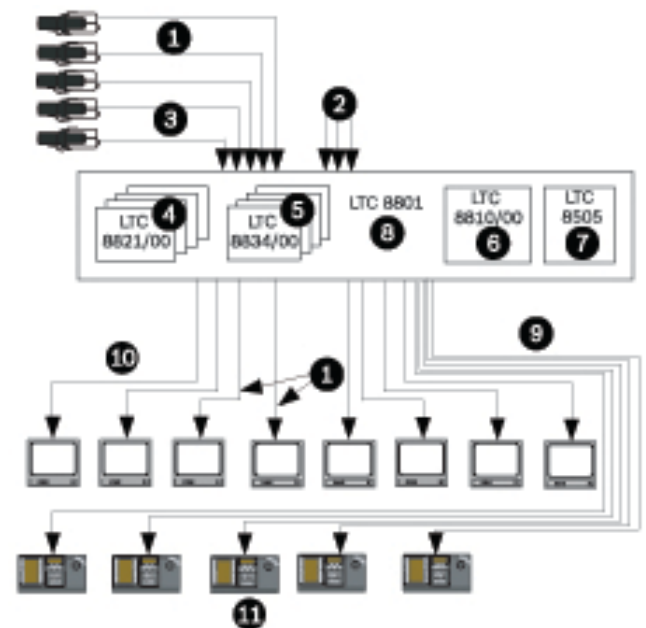
The LTC 8800 Series can serve as the master switcher in a SatelliteSwitch configuration. This innovative SatelliteSwitch feature enables a single LTC 8800 system to communicate with remotely located "Satellite" systems. Any Allegiant system model can serve as a remote Satellite switcher. This powerful feature permits

the design of a large distributed type system with control at one central location and individual control at the local sites. The main control site can view/control local cameras plus cameras located at any of the remotely distributed Satellite sites. The Satellite sites can view/control only cameras associated with their own site. When used in this type of configuration, the main LTC 8800 system can access up to 2048 cameras located anywhere in the system.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations. This product also complies with EN 50121-4 railway application standards. Refer to www.boschsecurity.com website for link to applicable documents.
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

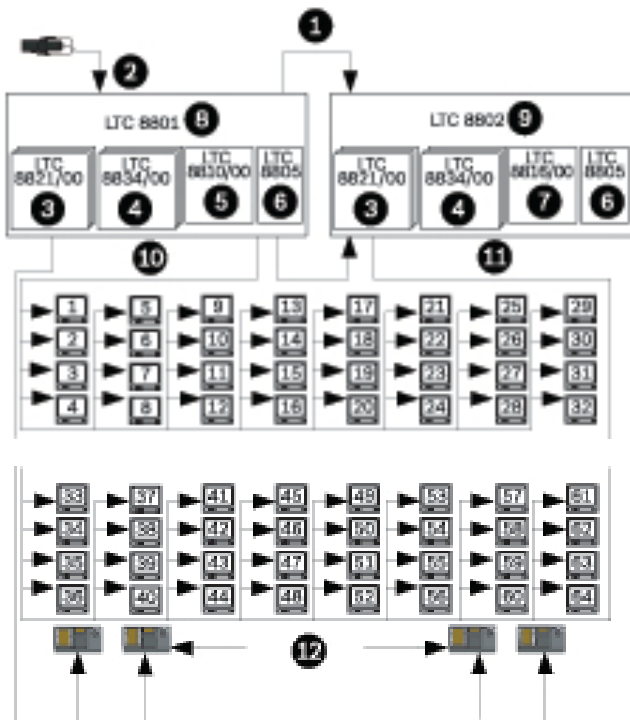
Installation/Configuration Notes



*LTC 8800 Series Configuration Diagram
(256 Cameras by 32 Monitors)*

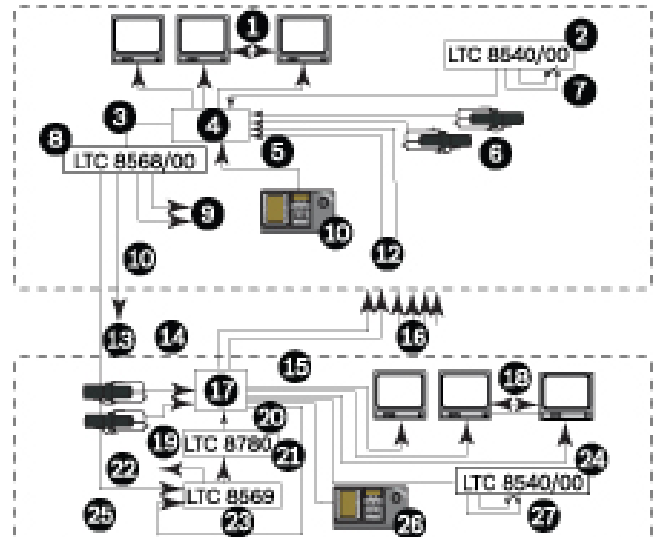
- 1 Video Coax
- 2 256 Camera Inputs Maximum
- 3 Additional System Cameras
- 4 Input Cards (max. 8)
- 5 Output Cards (max. 8)
- 6 CPU Module

- 7 Power Supply Module
- 8 Series Main CPU Bay
- 9 3 m (10 ft) Interconnect Cable Supplied with Keyboard
- 10 32 Monitor Output Capacity
- 11 32 Full Matrix Monitor Outputs Maximum, 32 Full Function Keyboards Maximum



LTC 8800 Series Dual-bay System (256 Cameras by 64 Monitors)

- 1 Coax Ribbon Jumper Cables (Supplied)
- 2 Up to 256 Cameras Total
- 3 8 x 32 Channel Input Cards (max. 8, each bay)
- 4 8 x 4 Channel Output Card (max. 8, each bay)
- 5 CPU Module
- 6 Power Supply Module
- 7 Data Receiver Module
- 8 Main CPU Bay
- 9 Monitor Expansion Bay
- 10 Monitor Outputs 1 to 32
- 11 Monitor Outputs 33 to 64
- 12 Maximum of 32 Full-function Keyboards up to 1.5 km (5000 ft) away Using Optional Remote Hookup Kit



Allegiant Satellite Switching System

- 1 Monitor Outputs
- 2 Alarm Interface Unit
- 3 Pan/Tilt/Zoom and Satellite Control Data
- 4 Allegiant Main CPU Bay
- 5 Alarm Inputs May Activate Either Local or Satellite Video Main Control Center's Monitor
- 6 Inputs Used for both Local and Trunk Lines
- 7 Local Camera Video
- 8 Signal Distribution Unit
- 9 To any Local PTZ Camera Sites
- 10 Up to 1.5 km (5000 ft) using 1 mm² (18 AWG) Shielded Twisted Pair (Belden 8760 or Equivalent)
- 11 Allegiant Keyboard Controls any Local or Remote Camera on any Local Monitor (Video and PTZ)
- 12 Multiple Video Trunk Lines from each Remote Satellite Location
- 13 One Line to Each Remote Satellite System Location
- 14 Pan/Tilt/Zoom and Satellite Control Data
- 15 Monitor Outputs Used as Video Trunk Lines to Main Control Site
- 16 Video Trunk Lines from other Satellite Locations
- 17 Any Model Allegiant Main Bay
- 18 Local Monitor
- 19 Console Port Input
- 20 Satellite Data Line
- 21 Data Converter Units
- 22 To any Local PTZ Camera Sites
- 23 Code Merger Unit
- 24 Alarm Interface Unit
- 25 Local PTZ Control Data Line
- 26 Alarm Interface Unit only Local Video on Local Monitors
- 27 Keyboard Controls any of the Local Cameras on any of the Local Monitors (Video and PTZ)

Technical Specifications**LTC 8800 Series System Specifications****Capacities**

Video Inputs	Standard: 256 Satellite configuration: 2048
Video Outputs	64
Keyboards	32
Alarm Inputs	1024
Receiver Drivers	Standard: 256 Satellite configuration: 2048

Electrical

Input Voltage Level	0.5 Vp-p to 2 Vp-p (composite negative sync)		
Gain	Unity \pm 4% (75 Ohm terminated)		
Pulse/Bar Ratios ¹	Min.	Nom.	Max.
	94%	98%	106%
2T Pulse K Factor ¹	Min.	Nom.	Max.
		0.2%	2.5%
Bar Amplitude (IRE) ¹	Min.	Nom.	Max.
	96	98	104
Sync Amplitude (% Bar) ¹	Min.	Nom.	Max.
	36%	39%	44%
Field Time Waveform Distortion ¹	2% maximum		
Line Time Waveform Distortion ¹	1% maximum		
Short Time Waveform Distortion ¹	2% maximum		
Long Time Waveform Distortion ¹	0.8% maximum		
Video Bandwidth (-3 dB) ²	15 MHz		
Frequency Response (\pm 0.5 dB) ²	12 MHz		
Signal-to-Noise-Ratio ¹	70 dB at 3.58 MHz unified, unweighted minimum		
Crosstalk (at 3.58 MHz)	Input to input: -60 dB Adjacent channel: -50 dB (typical)		
Hum	60 dB below the composite 1 Vp-p video signal from 60 Hz to 6 MHz		
Differential Gain ¹	Min.	Nom.	Max.
	---	0.6%	2%
Differential Phase ¹	Min.	Nom.	Max.
	---	0.6°	1.3°
Chrominance Luminance Gain ¹	Min.	Nom.	Max.
	96%	100%	104%
Chrominance Luminance Delay ¹	Min.	Nom.	Max.
	-33 ns	+3 ns	+33 ns
Luminance Nonlinearity ¹	Min.	Nom.	Max.
	---	0.3%	4%
Switching	Crosspoint matrix		
DC Output	0.34 V		

Transient Protection (VIM Cards)	350 W Peak Pulse Power (tp = 8/20 μ s)
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1 Meets EIA/TIA - 250C Medium Haul Standard for 256 cameras x 32 monitors.

2 One camera to one monitor.

Environmental**Temperature**

Operating	4°C to 50°C (40°F to 122°F)
Storage	-40°C to 60°C (-40°F to 140°F)
Altitude	4500 m (15,000 ft)
Humidity	0% to 95% relative, non-condensing
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 m/s, ½ sine wave

LTC 8801 Series Main CPU Bay

Includes equipment rack, LTC 8810/01 microprocessor module, and LTC 8805 Series power supply.

Power

Model No.	Rated Voltage	Voltage Range	Nominal Power ³
LTC 8801/60	120 VAC, 50/60 Hz	100 to 140	200 W
LTC 8801/50	220-240 VAC, 50/60 Hz	198 to 264	200 W

3 Power at rated voltage fully loaded.

Connectors

Video Inputs: 1 to 96	One (1) sync Input, and 32 monitor outputs BNC
Video Connections: 97 to 256	Ten (10), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel (purchased separately)
Looping Video Connections: 1 to 256	Sixteen (16), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel (purchased separately)

External Accessory Interfaces

Console	9-pin D-type RS-232 port for external PC or control interface (default = 19,200 baud)
Alarm	9-pin D-type RS-232 port for Allegiant alarm accessory unit (default = 19,200 baud)
Printer	9-pin D-type RS-232 port for system logging printer (default = 19,200 baud)
SDA	9-pin D-type TTL level, high-speed control data output (Bi-Phase) for interface to Allegiant series signal distribution units (data clock rate = 31.25 kHz)
COMM Port	9-pin D-type RS-485 port for interbay communication use (default = 125,000 baud)
COMM Port	9-pin D-type RS-485 port for external Allegiant accessory use (default = 125,000 baud)
Keyboards	Eight (8), 6-pin RS-485 ports for Allegiant keyboard use (default = 9600 baud)

Equipment Rack (LTC 8801)

Size (W x D x H)	EIA 48 cm (19 in.) rack 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	11.1 kg (24.5 lb)
Construction/Finish	
Top and Bottom	Steel
Front, Sides, and Back	Aluminum
Finish	Charcoal

Microprocessor Module (LTC 8810/01)

Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.5 kg (1.1 lb)

Power Supply (LTC 8805/60–120 VAC, LTC 8805/50–220–240 VAC)

Size (W x D x H)	67 x 360 x 247 mm (2.63 x 14.2 x 9.7 in.)
Weight	5.2 kg (11.5 lb)
Indicators	One power On/Off, ten fuse alert, and one external sync LED

LTC 8802 Series Monitor Expansion Bay

Includes equipment rack, LTC 8816/01 data receiver module, and LTC 8805 Series power supply.

Power

Model No.	Rated Voltage	Voltage Range	Nominal Power ⁴
LTC 8802/60	120 VAC, 50/60 Hz	100 to 140	200 W
LTC 8802/50	220–240 VAC, 50/60 Hz	198 to 264	200 W

4. Power at rated voltage fully loaded.

Connectors

Video Inputs	1 to 96, and 32 monitor outputs BNC
Sync Input	Not used
Video Connections: 97 to 256	Ten (10), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel (purchased separately)
Looping Video Connections: 1 to 256	Sixteen (16), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel

External Accessory Interfaces

Console	9-pin D-type connector, not used
Alarm	9-pin D-type connector, not used
Printer	9-pin D-type connector, not used
SDA	9-pin D-type connector, not used
COM Port	9-pin D-type connector RS-485 port for interbay communication use (default = 125,000 baud)
COM Port	9-pin D-type connector, not used
Keyboards	Eight (8), 6-pin RS-485 ports for Allegiant keyboard use (default = 125,000 baud)

Equipment Rack (LTC 8802 Series)

Size (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	11.1 kg (24.5 lb)
Construction/Finish	
Top and Bottom	Steel
Front, Sides, and Back	Aluminum
Finish	Charcoal

Data Receiver Module (LTC 8816/01)

Size (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	0.5 kg (1.1 lb)

Power Supply (LTC 8805/60–120 VAC, LTC 8805/50220–240 VAC)

Size (W x D x H)	67 x 360 x 247 mm (2.63 x 14.2 x 9.7 in.)
Weight	5.2 kg (11.5 lb)
Indicators	One power On/Off, ten fuse alert, and one external sync LED

LTC 8821/00 Camera Input Module

Use up to eight per bay in main CPU bay. If monitor expansion bay is being used, equip with duplicate number of modules.

Camera Inputs	32
Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.41 kg (0.9 lb)

LTC 8834/00 Monitor Output Module

Use up to eight per bay in main CPU or monitor expansion bay.

Monitor Outputs	4
Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.41 kg (0.9 lb)

LTC 8808/00 Video Interconnect Panel

NOTE: Use of the LTC 8808/00 assemblies are required for system video inputs 97 to 256 and must be purchased separately. The LTC 8808/00 assembly contains an interconnect panel which is used to convert 32 BNC connectors into two 16- channel ribbon cable connectors. The two, 16-conductor ribbon cables (LTC 8809/00), designed especially for use with video signals, and are then used to interconnect the video between the panel and the LTC 8800 Series system. In addition to being used for video inputs 97 to 256, the LTC 8808/00 assembly can also be ordered as an option to provide looping output capability. For looping purposes, one LTC 8808/00 (includes one panel and two ribbon cables) is required for each group of 32 cameras.

The following table can be used to determine the number of LTC 8808/00 assemblies that must be purchased:

Number of System Cameras	Number of LTC 8808 Assemblies Required for Camera Input Connections Only	Number of LTC 8808 Required for Inputs and Looping Video Outputs
1 to 32	None	1
33 to 64	None	2
65 to 96	None	3
97 to 128	1	5

129 to 160	2	7
161 to 196	3	9
197 to 224	4	11
225 to 256	5	13
Finish	Charcoal	
Size (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 42 x 44 mm (19 x 1.65 x 1.75 in.)	
Weight		
Panel	0.54 kg (1.2 lb)	
Ribbon Cables (2)	0.3 kg (0.7 lb)	

Allegiant Accessories

The LTC 8800 Series accessory products provide many optional features to the base Allegiant switching systems. Accessory products include keyboard extension kits, Allegiant Bilinx Data Interface unit, receiver/driver units, switcher/followers, code merger units, the video ribbon cable and keyboard expansion units. All accessory products are designed to be installer-friendly and compatible throughout Allegiant series systems. See the Allegiant Accessories datasheet.

Ordering Information

LTC 8801/50 Allegiant Matrix Switcher Includes equipment rack, LTC 8810/01 microprocessor module and LTC 8805 Series power supply; 220-240 VAC, 50/60 Hz	LTC 8801/50
LTC 8802/50 Monitor Expansion Bay Includes equipment rack, LTC 8816/01 data receiver module and LTC 8805 Series power supply; 220-240 VAC, 50/60 Hz	LTC 8802/50
LTC 8821/00 Video Input Module for LTC 8800, 32 video inputs per card	LTC 8821/00
LTC 8834/00 Video Output Module for LTC 8600 and LTC 8800, 4 video outputs per card	LTC 8834/00

Accessories

LTC 8810/00 Spare CPU Module for LTC 8801/00 bay	LTC 8810/00
LTC 8805/50 Spare Power Supply for LTC 8601/50 bay, 220-240 VAC, 50 Hz	LTC 8805/50
LTC 8805/60 Spare Power Supply for LTC 8601/60 bay, 120 VAC, 60 Hz	LTC 8805/60
LTC 8810/01 Spare CPU Module for LTC 8801 bay	LTC 8810/01
LTC 8816/00 Data Receiver Module for LTC 8802/00, 0.5 kg (1.1 lb)	LTC 8816/00
LTC 8816/01 Data Receiver Module REP data RX module, LTC 8802 Series	LTC 8816/01

Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
LTC 8059/00 Allegiant Master Control Software	LTC 8059/00

LTC 8900 Series Allegiant Matrix/Control Systems - Modular



Features

- ▶ **4096 Camera by 512 monitor switching**
- ▶ **Modular construction**
- ▶ **Powerful alarm handling capabilities**
- ▶ **SalvoSwitching and SatelliteSwitch capability**
- ▶ **Includes Windows-based configuration software**
- ▶ **Two-digit site plus 4-digit camera ID mode**

Additional Features of Redundant System Configurations

- ▶ **Includes system controller PC and LCD monitor**
- ▶ **Preloaded programming and diagnostic software**
- ▶ **Dual/redundant CPU/power supply**

The LTC 8900 Series Allegiant Video Switcher/Control Systems are powerful full matrix switchers, capable of displaying video from any camera on any monitor, either manually or via independent automatic switching sequences. By using the LTC 8901 Series CPU and the LTC 8943 series PC, the standard system can be enhanced to include dual/redundant CPU/Power supply with automatic hot-switchover capabilities.

Functions

General Construction

The LTC 8900 Series provides versatile modular construction accommodating up to 4096 camera inputs, 512 monitor outputs, 120 keyboards, 1024 alarm points, and a computer interface port. The robust design utilizes a separate CPU bay with its own power supply.

Dual/Redundant System

For situations where complete system failure cannot be tolerated, we offer the dual redundant LTC 8901 CPU. This CPU unit incorporates a secondary CPU/power supply. In the event of a primary CPU or power supply failure, the system switches over automatically to the backup CPU or power supply. The system uses an independent PC that continuously monitors the CPUs for failure and performs a hot-switchover if needed. You can also manually change CPUs using the preloaded software or via a front panel slide switch.

Sequencing Capabilities

These systems can be programmed with up to 256 sequences, which can be run independently of each other in either a forward or reverse direction. Any of the sequences can utilize the SalvoSwitching capability, where any number of system monitors may be selected to switch as a group. Using the supplied software, sequences can automatically activate and deactivate based upon the day or the time of day.

Camera Control

The LTC 8900 Series support variable speed operation and full programming access for AutoDome and AutoDome Easy II Series cameras. In addition, on-site receiver/drivers are available to provide operator control of pan, tilt, zoom, pre-positions, auxiliaries, auto-pan, and random scan functions when used with conventional pan/tilt devices. An integral local test function is also a standard feature.

The LTC 8900 Series include an impressive user-based priority system and a series of programmable lockout tables to limit operator access of remotely controlled devices. Operators can restrict control from lower priority operators either manually or automatically. When enabled to operate automatically, a built-in time-out period is user programmable.

Bilinx Capability

When combined with an LTC 8016 Allegiant Bilinx Data Interface unit, these switcher/controllers support operations using Bilinx communication. With Bilinx, PTZ control is accomplished using a bidirectional communication protocol embedded in the video signal of Bosch Dinion[®], AutoDome, and AutoDome Easy II CCTV cameras. In addition, Bilinx uses the standard video cable to transmit alarm and status messages from the cameras, providing superior performance without the need for separate data transmission cables.

Macro Capabilities

The LTC 8900 system provides powerful macro capabilities. Macros can be activated using Allegiant Series system keyboards, timed event functions, and alarm activations.

Alarm Capabilities

The LTC 8540/00 alarm interface unit allows external contact closure or logic level input to automatically display cameras on a monitor or group of monitors. The supplied PC software includes the ability to combine multiple alarm operating modes within the same system. Alarm video may be selected to reset either manually or automatically. In addition, one can customize a 16-character alarm titles to designate the specific alarm condition.

System Operation

System operation and programming is accomplished using a full-function, ergonomically designed keyboard. Up to 120 keyboards may be used in the system. Built-in operator priority levels and the ability to restrict certain operators from controlling designated functions provide maximum flexibility.

Programming/Software Capabilities

The LTC 8900 Series includes a black outlined 48-character on-screen display for time/date, camera number, camera ID (16 or 40 characters), and monitor (12 characters) or status information. A user selectable option provides the ability to display a third line of on-screen text. This third line can be configured to display up to 24 additional camera title characters (40 characters total) or a 12-character monitor title.

The on-screen display is also user selectable to operate in "6-digit Camera ID" mode. When enabled, 2-digit "site numbers" are displayed in addition to the 4-digit camera number. The 2-digit site number feature is especially useful when groups of cameras are located in separate buildings, floors, or other common areas.

Over 1,000 characters covering a multitude of languages, (including several hundred Chinese symbols) are available to help program camera ID and monitor titles. Using the supplied PC software, enhanced programming and switching features can be obtained. A user friendly spreadsheet format allows one to easily enter/change camera titles, operator names, timed events (128), system parameters, camera sequences, lockouts, and advanced alarm response programming. The software also provides the ability to enable an on-screen indicator for easy identification of controllable cameras. Another useful feature of the software is its ability to store or print (in real-time) programming information, system events, alarms, switching functions, sequence events, keyboard actions, and video loss information.

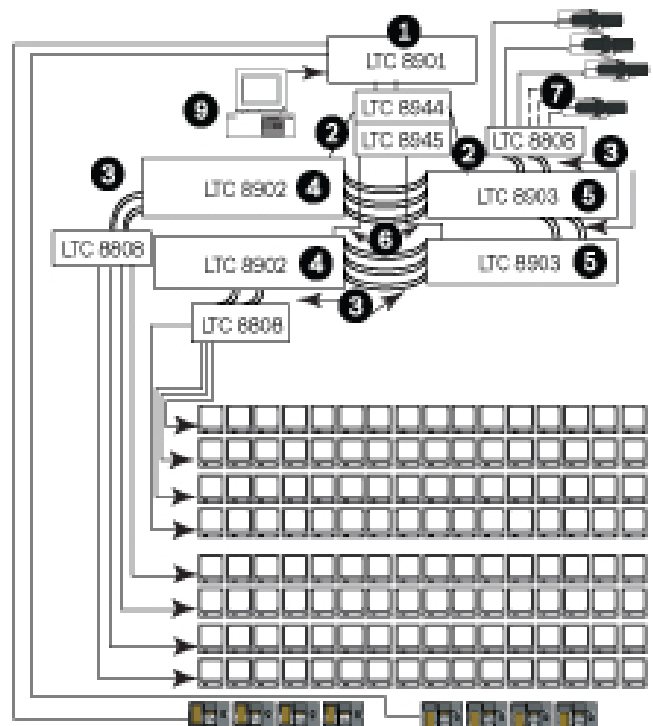
Expansion Capabilities

The LTC 8900 Series can serve as the Master or Slave Switcher in a SatelliteSwitch® configuration. This innovative SatelliteSwitch feature enables a single LTC 8900 system to communicate with remotely located Satellite systems. Any Allegiant system can serve as a remote Satellite Switcher. This powerful feature permits the design of large distributed type systems. The main control site can view and control local cameras as well as cameras located at any of the remotely distributed Satellite sites. The Satellite sites can view and control only cameras associated with their local site. When used in this type of configuration, the main LTC 8900 system can access up to 256 Satellite sites.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

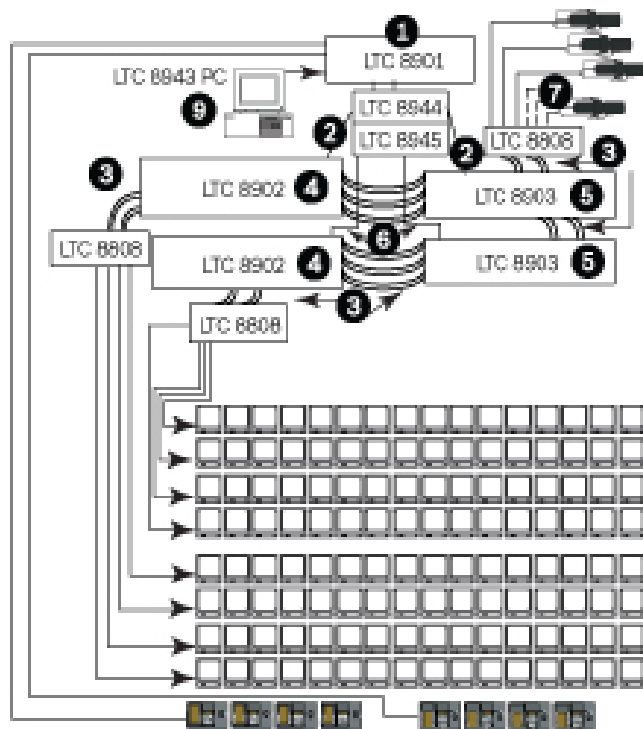
Installation/Configuration Notes



Typical Diagram of LTC 8904 Series System Configuration
(256 Cameras by 128 Monitors)

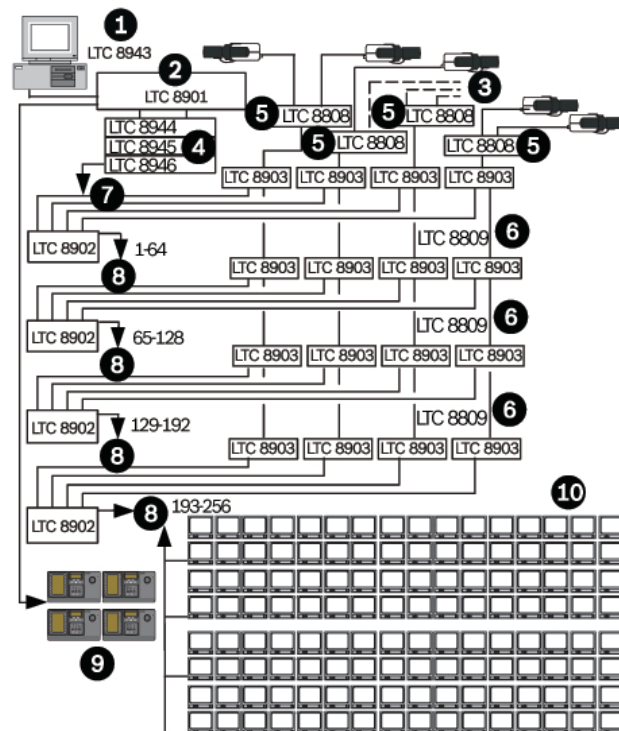
- 1 Main CPU Bay
- 2 LAN Data Lines
- 3 LTC 8809 Cables
- 4 Video Output Bay
- 5 Video Input Bay
- 6 Camera

- 7 Monitors
- 8 Keyboards
- 9 User PC



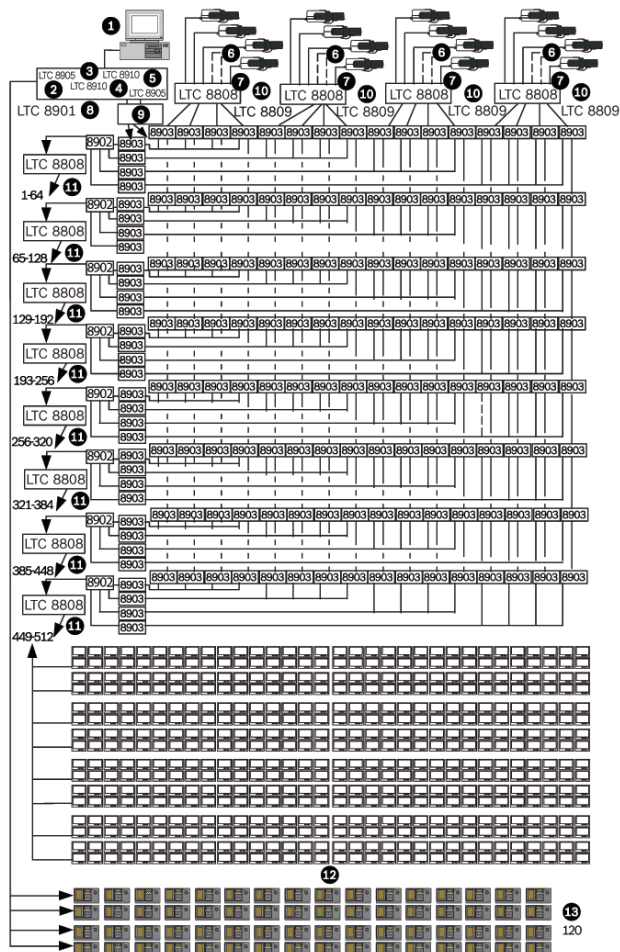
Typical Diagram of LTC 8901 Series Redundant System Configuration (256 Cameras by 128 Monitors)

- 1 Main CPU Bay
- 2 LAN Data Lines
- 3 LTC 8809 Cables
- 4 Video Output Bay
- 5 Video Input Bay
- 6 Camera
- 7 Monitors
- 8 Keyboards
- 9 PC



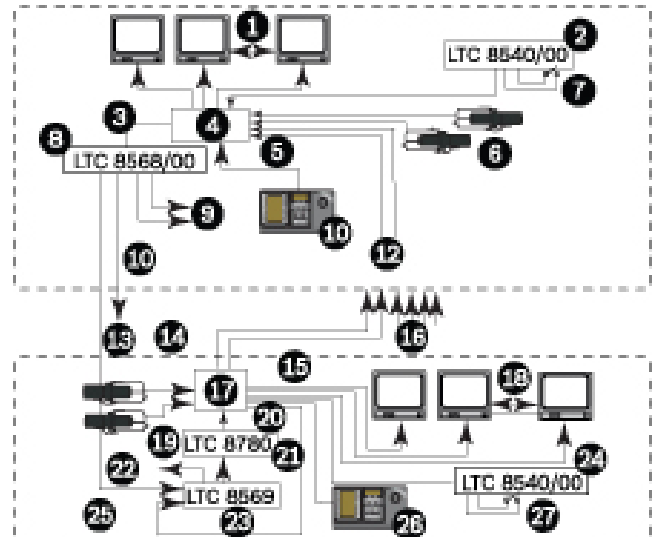
Typical Diagram of LTC 8901 Series Redundant System Configuration (1024 Cameras by 256 Monitors)

- 1 PC Running Configuration, Redundancy, and Data Mirroring Software
- 2 Main CPU Bay
- 3 Cameras
- 4 LAN Switchers
- 5 Video Panels
- 6 Coax Ribbon Cables
- 7 LAN Data Lines to all Bays
- 8 To Monitors
- 9 Up to 120 System Keyboards (Using LTC 8714 and LTC 8715 Series Port Expanders)
- 10 Up to 512 System Monitors



Typical Diagram of LTC 8901 Series Redundant System Configuration (4096 Cameras by 512 Monitors)

- 1 PC Running Configuration Software
- 2 Main Power Supply
- 3 Main CPU Module
- 4 Backup CPU Module
- 5 Backup Power Supply
- 6 Cameras
- 7 Video Panels
- 8 Main CPU Bay
- 9 LAN Switches
- 10 Coax Ribbon Cables
- 11 To Monitors
- 12 Up to 512 System Monitors
- 13 UP to 120 System Keyboards (Using LTC 8714 and LTC 8715 Series Port Expanders)



Allegiant Satellite Switching System

- 1 Monitor Outputs
- 2 Alarm Interface Unit
- 3 Pan/Tilt/Zoom and Satellite Control Data
- 4 Allegiant Main CPU Bay
- 5 Alarm Inputs May Activate Either Local or Satellite Video Main Control Center's Monitor
- 6 Local Camera Video
- 7 Inputs Used for both Local and Trunk Lines
- 8 Signal Distribution Unit
- 9 To any Local Pan/Tilt/Zoom Camera Sites
- 10 Up to 1.5 km (5000 ft) using 1 sq mm (18 AWG) Shielded Twisted Pair (Belden 8760 or Equivalent)
- 11 Allegiant Keyboard Controls any Local or Remote Camera on any Local Monitor (Video and Pan/Tilt/Zoom)
- 12 Multiple Video Trunk Lines from each Remote Satellite Location
- 13 One Line to Each Remote Satellite System Location
- 14 Pan/Tilt/Zoom and Satellite Control Data
- 15 Monitor Outputs used as Video Trunk Lines to Main Control Site
- 16 Video Trunk Lines from other Satellite Locations
- 17 Any Model Allegiant Main Bay
- 18 Local Monitor
- 19 Console Port Input
- 20 Satellite Data Line
- 21 Data Converter Unit
- 22 To any Local Pan/Tilt/Zoom Camera Sites
- 23 Code Merger Unit
- 24 Alarm Interface Unit
- 25 Local Pan/Tilt/Zoom Control Data Line
- 26 Alarm Inputs Activate only Local Video on Local Monitors
- 27 Allegiant Keyboard Controls any of the Local Cameras on any of the Local Monitors (Video and Pan/Tilt/Zoom)

Technical Specifications**LTC 8900 Series System Specifications****Capacities**

Video Inputs

Standard 4096

Satellite Configuration 6144

Video Outputs 512

Keyboards 120

Alarm Inputs 1024

Receiver/Drivers

Standard 4096

Satellite Configuration 6144

ElectricalInput Voltage Level 0.5 Vp-p to 2 Vp-p
(composite negative sync)Gain Unity \pm 2%
(75 Ohm terminated)Pulse/Bar Ratios¹
94% 98% 106%2T Pulse K Factor¹
Min. Nom. Max.
0.2% 2.5%Bar Amplitude (IRE)¹
Min. Nom. Max.
96 98 104Sync Amplitude (% Bar)¹
Min. Nom. Max.
36% 39% 44%Field Time Waveform Distortion¹ 2% maximumLine Time Waveform Distortion¹ 1% maximumShort Time Waveform Distortion¹ 2% maximumLong Time Waveform Distortion¹ 0.8% maximum

Video Bandwidth (-3 dB) 17 MHz

Frequency Response \pm 0.5 dB to 11 MHzSignal-to-Noise-Ratio¹ 70 dB at 3.58 MHz unified un-weighted minimumCrosstalk (at 3.58 MHz)
Typical: -65 dB,
Adjacent channel: -45 dB (typical)Hum 60 dB below the composite
1 Vp-p video signal from 60 Hz to
6 MHzDifferential Gain¹
Min. Nom. Max.
0.6% 2%Differential Phase¹
Min. Nom. Max.
0.6° 1.3°Chrominance Luminance Gain
Min. Nom. Max.
94% 100% 109%Chrominance Luminance Delay¹
Min. Nom. Max.
-33 ns +3 ns +33 nsLuminance Nonlinearity¹
Min. Nom. Max.
0.3% 4%

Switching Crosspoint matrix

DC Output 0 V

Transient Protection 350 W Peak Pulse Power
(VIM Cards) (tp = 8/20 μ s)

1 Meets EIA/TIA - 250C Medium Haul Standard for 1024 cameras x 64 monitors.

Environmental**Temperature**

Operating 4°C to 50°C (40°F to 122°F)

Storage -40°C to 60°C (-40°F to 140°F)

Altitude 4500 m (15,000 ft)

Humidity 0 to 95 % relative, non-condensing

Vibration 3 g swept sine wave, 15 Hz to 2000 Hz

Shock 50 g, 11 m/s, ½ sine wave

LTC 8904 CPU Equipment BayThe LTC 8904/60 and LTC 8904/50 include the equipment rack,
LTC 8910/01 microprocessor module, LTC 8905/90 power supply, and
LTC 8917/00 relay module.**Electrical**

Model No.	Rated Voltage	Voltage Range	Nominal Power ²
LTC 8904/60	120 VAC, 50/60 Hz	100 to 140	30 W
LTC 8904/50	220–240 VAC, 50/60 Hz	198 to 264	30 W

² Power at rated voltage fully loaded.**Connectors**

Controller Port	9-pin D-type RS-232 port for an external PC or computing device (default = 115,200 baud)
Console	9-pin D-type RS-232 port for an external computer or a computing device (default = 19,200 baud)
Alarm	9-pin D-type RS-232 port for an Allegiant alarm accessory unit (default = 19,200 baud)
Bi-Phase	9-pin D-type TTL level, high-speed control data output (BiPhase) for interface to an Allegiant series signal distribution units (data clock rate = 31.25 kHz)
COM Ports	Two 9-pin D-type RS-485 ports for an external Allegiant accessory use
Keyboards	Eight (8), 6-pin RS-485 ports for an Allegiant keyboard use (default = 9600 baud)
LAN	RJ-45 high-speed LAN port for interface to LTC 8902 Series and LTC 8903 Series bays via LTC 8946 Series LAN switches

Components**Equipment Rack**

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 440 x 394 x 86 mm (17.3 x 15.5 x 3.4 in.)
Weight	7.2 kg (15.85 lb)
Construction	Metal case with plastic panel
Finish	Charcoal

Microprocessor Module (LTC 8910/01)

Dimensions (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.5 kg (1.1 lb)

Power Supply (One-LTC 8905/90)**Relay Module (LTC 8917/00)**

Dimensions (D x H)	300 x 250 mm (11.8 x 9.8 in.)
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Front Panel Indicators Power, CPU activity

LTC 8901 Series CPU Equipment Bay

The LTC 8901/60 and LTC 8901/50 include the equipment rack, dual LTC 8910/01 microprocessor modules, dual LTC 8905/90 power supplies, and one LTC 8917/00 relay module.

Electrical

Model No.	Rated Voltage	Voltage Range	Nominal Power ³
LTC 8901/60	120 VAC, 50/60 Hz	100 to 140	30 W
LTC 8901/50	220–240 VAC, 50/60 Hz	198 to 264	30 W

3 Power at rated voltage fully loaded.

Connectors

Controller Ports	Two (2), RS-232 ports for an LTC 8943 PC controller interface (default = 115,200 baud)
Console	RS-232 port for an external computer or a computing device (default = 19,200 baud)
Alarm	RS-232 port for an Allegiant alarm accessory unit (default = 19,200 baud)
Switch Ctrl	Digital interface port for the LTC 8943 PC controller
Bi-Phase	TTL level, hi-speed control data output (Bi-Phase) for interface to an Allegiant series signal distribution units (data clock rate = 31.25 kHz)
COM Ports	Two (2), RS-485 port for an external Allegiant accessory use
Keyboards	Eight (8), 6-pin RS-485 ports for an Allegiant keyboard use (default = 9600 baud)
LAN	Two RJ-45 high-speed LAN ports for interface to LTC 8902 Series and LTC 8903 Series bays via LTC 8944 Series and LTC 8945 Series LAN Switches

Components**Equipment Rack**

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 440 x 394 x 86 mm (17.3 x 15.5 x 3.4 in.)
Weight	8 kg (17.6 lb)
Construction	Metal case with plastic panel
Finish	Charcoal

Microprocessor Modules (Two–LTC 8910/01)

Dimensions (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.5 kg (1.1 lb)

Power Supplies (Two–LTC 8905/90)**Relay Module (LTC 8917/00)**

Dimensions (D x H)	300 x 250 mm (11.8 x 9.8 in.)
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Front Panel Indicators**LTC 8901**

Primary power
Primary fault
Back-up power
Back-up fault
Primary CPU in-use
Controller activity
Back-up CPU in-use
Auto-select mode
Primary CPU activity
Fault buzzer
Back-up CPU activity

LTC 8904

Power
CPU Activity

Rear Panel Indicators

Relay outputs⁴
Primary CPU fault
Back-up power supply failure
Back-up CPU fault
Any failure
Primary power supply failure

4 Relay Contacts: 24 VAC, 40 V peak, 1 A.

LTC 8902 Series Monitor Output Bays

The LTC 8902/60 and LTC 8902/50 include the equipment rack, LTC 8916/01 data receiver module, and LTC 8906 Series power supply.

Electrical

Model No.	Rated Voltage	Voltage Range	Nominal Power ⁵
LTC 8902/60	120 VAC, 50/60 Hz	100 to 140	160 W
LTC 8902/50	220–240 VAC, 50/60 Hz	198 to 264	160 W

5 Power at rated voltage fully loaded.

Connectors

Video Outputs	Four (4), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel
Video Bus Connections	Sixteen (16), 34-pin ribbon connectors interconnect with LTC 8903 Series Camera Input bays using LTC 8809/00 ribbon cables
Console	Port reserved for future use
COM 1	Port reserved for future use
COM 2	Port reserved for future use
EXT Sync	BNC input used to synchronize the unit to an external sync signal. Accepts composite video, composite sync, or the V Sync output provided from another LTC 8900 Series matrix bay
V Sync	BNC connector provides an output signal to synchronize an additional LTC 8900 Series matrix bay via its EXT Sync input
External Data Interface	Two (2), RJ-45 high-speed LAN ports for interface to the LTC 8901 Main CPU bay via system LAN Switches. (Connected in parallel; one is used, one is reserved for future use)

Components**Equipment Rack**

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	11.1 kg (24.5 lb)
Construction	Metal cabinet
Finish	Charcoal

Data Receiver Module (LTC 8916/01)

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	0.5 kg (1.1 lb)

Power Supply (LTC 8906/60 or LTC 8906/50)

Dimensions (W x D x H)	67 x 360 x 247 mm (2.63 x 14.2 x 9.7 in.)
Weight	5.2 kg (11.5 lb)
Indicators	Power On/Off and fuse alert LEDs

LTC 8903 Series Camera Input Bays

The LTC 8903/60 and LTC 8903/50 include the equipment rack, LTC 8918/01 data receiver module, and LTC 8805 Series power supply.

Electrical

Model No.	Rated Voltage	Voltage Range	Nominal Power ⁶
LTC 8903/60	120 VAC, 50/60 Hz	100 to 140	85 W
LTC 8903/50	220–240 VAC, 50/60 Hz	198 to 264	85 W

⁶ Power at rated voltage fully loaded.

Connectors

Video Inputs	Sixteen (16), 34-pin ribbon connectors used in conjunction with the LTC 8808/00 video interconnect panel
Looping Video Input Connections	Sixteen (16), 34-pin ribbon connectors used with LTC 8809/00 ribbon cables (supplied as required to loop to additional LTC 8903 Series bays)
Video Bus Connections	Four (4), 34-pin ribbon connectors interconnect with LTC 8903 Series camera input bays using LTC 8809/00 ribbon cables
Console	Port reserved for future use
COM 1	Port reserved for future use
COM 2	Port reserved for future use
EXT SYNC	BNC input used to synchronize unit to external sync signal; accepts composite video, composite sync, or the V Sync output provided from another LTC 8900 Series matrix bay
V SYNC	BNC connector provides output signal to synchronize an additional LTC 8900 Series matrix bay via its EXT Sync input
External Data Interface	Two (2), RJ-45 high-speed LAN ports for interface to LTC 8901 main CPU bay via system LAN Switches (Connected in parallel; one is used, one is reserved for future use)

Components**Equipment Rack**

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	11.1 kg (24.5 lb)
Construction	Metal cabinet
Finish	Charcoal

Data Receiver Module (LTC 8918/01)

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 420 x 267 mm (19 x 16.5 x 10.5 in.)
Weight	0.5 kg (1.1 lb)

Power Supply (LTC 8805/60 or LTC 8805/50)

Size (W x D x H)	67 x 360 x 247 mm (2.63 x 14.2 x 9.7 in.)
Weight	5.2 kg (11.5 lb)
Indicators	Power On/Off and fuse alert LEDs

LTC 8921/00 Video Input Module

Use up to sixteen per LTC 8903 Series camera input bays.

Camera Inputs	32
Size (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.41 kg (0.9 lb)

LTC 8934/00 Video Output Module

Use up to eight per LTC 8902 Series monitor output bays.

Monitor Outputs	8
Dimensions (D x H)	300 x 250 mm (11.8 x 9.8 in.)
Weight	0.41 kg (0.9 lb)

LTC 8941/91 System Controller**(Redundant System Configurations Only)**

Includes LTC 8943/94 PC, LTC 8944/93 Primary LAN Switch and LTC 8945/93 Backup LAN Switch

LTC 8943/94 PC	Rack-mount industrial-grade Pentium PC, 512 MB RAM (minimum), 8 GB solid state hard drive (minimum), CD-/DVD burner, floppy drive, keyboard, mouse, keyboard/mouse rack-mount shelf, and Windows XP Professional; 120/230 VAC, 50/60 Hz
LTC 8059/00	Allegiant Master Control software (installed on PC)
Monitor (UML-191-90)	48.3 cm (19 in.) LCD panel 120/230 VAC, 50/60 Hz
Monitor Rack (UMM-LCDUB-RM)	Racked Height: 37.4 cm (14.7 in.) Racked Width: 48.3 cm (19.0 in.)
LTC 8944/93 Primary LAN Switch	24-port 10/100Base-T Ethernet Switch with SNMP Module, programmed with primary IP Address; 120/220 VAC, 50/60 Hz
LTC 8945/93 Back-Up LAN Switch	24-port 10/100Base-T Ethernet Switch with SNMP Module, programmed with back-up IP Address; 120/220 VAC, 50/60 Hz

LTC 8946/93 Expansion LAN Switch

24-port 10/100BaseT Ethernet Switch, no SNMP module; 120/220 VAC, 50/60 Hz

LTC 8808/00 Video Interconnect Panel

The LTC 8808/00 assembly contains an interconnect panel which is used to convert 32 BNC connectors into two 16-channel ribbon cable connectors. The two (2) coaxial ribbon cables (LTC 8809/00), designed especially for use with video signals, and are then used to interconnect the video between the panel and the LTC 8900 system. Use of the LTC 8808/00 assemblies are required for all external video input and output connections. In addition to being used for video inputs and monitor outputs, the LTC 8808/00 assembly is also used to provide looping capability. One (1) LTC 8808/00 (includes panel and two ribbon cables) is required for each group of 32 system cameras or 32 monitors.

Dimensions (W x D x H)	EIA 48 cm (19 in.) rack, 483 x 42 x 44 mm (19 x 1.65 x 1.75 in.)
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Weight

• Panel	0.54 kg (1.2 lb)
• Ribbon Cables	Two (2), 0.3 kg (0.7 lb)

Construction	Metal
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Finish	Charcoal
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Allegiant Accessories

The LTC 8900 Series accessory products provide many optional features to the base Allegiant switching systems. Accessory products include keyboard extension kits, Allegiant Bilinx Data Interface unit, receiver/driver units, switcher/followers, code merger units, video ribbon cables, and keyboard expansion units. All accessory products are designed to be installer-friendly and compatible throughout the Allegiant series systems. See the Allegiant Accessories datasheet.

Ordering Information

LTC 8901/50 Allegiant Dual CPU Bay Dual CPU bay, 230 VAC	LTC 8901/50
LTC 8902/50 Allegiant Monitor Bay Monitor bay, 230 VAC	LTC 8902/50
LTC 8903/50 Allegiant Camera Bay Camera bay, 230 VAC	LTC 8903/50
LTC 8904/50 Allegiant CPU Bay CPU bay, 230 VAC	LTC 8904/50
LTC 8905/90 Power Supply for LTC 8901 and LTC 8904 Series, 120/240 VAC	LTC 8905/90
LTC 8906/50 Power Supply for LTC 8902/50, 230 VAC	LTC 8906/50
LTC 8910/01 CPU Module CPU module for LTC 8901 and LTC 8904 Series	LTC 8910/01
LTC 8916/01 Data Receiving Module for LTC 8902 Series	LTC 8916/01
LTC 8917/00 Relay Module for LTC 8901 Series	LTC 8917/00
LTC 8918/01 Data Receiving Module for LTC 8903 series	LTC 8918/01
LTC 8921/00 Video Input Module for LTC 8900 Series	LTC 8921/00
LTC 8934/00 Video Output Module for LTC 8900 Series	LTC 8934/00

Ordering Information

LTC 8934/00-75 VOM LTC 8900 VOM with Korean characters	LTC 8934/00-75
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LTC 8941/91 PC/Monitor/LAN/Software Package for LTC 8901 Series	LTC 8941/91
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Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
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IntuiKey Series Keyboards



Features

- ▶ **Control matrix, DVR, and IP video products with one keyboard**
- ▶ **Soft keys allow for product-specific menus**
- ▶ **Backlit keys and easy-to-read displays**
- ▶ **Simplified system programming with an intuitive interface**
- ▶ **Multilingual support**
- ▶ **Plug-and-play with Bosch Switchers, DVRs, Multiplexers, and IP solutions**
- ▶ **Optional PC software supports customizable Allegiant command script programming**

The IntuiKey Series keyboards are full function, multipurpose keyboards used for system control and programming. The IntuiKey includes an integral variable speed pan/tilt/zoom (PTZ) joystick and a splash resistant design. An optional rack mount kit allows the IntuiKey to be mounted in a standard EIA 48 cm (19 in.) rack.

Functions

The IntuiKey Digital Keyboard is available in two models, KBD-Universal and KBD-Digital. The Universal version can be connected to an Allegiant switcher and either Divar Digital Video Recorders or System4 Multiplexers at the same time. This capability eliminates the need for multiple keyboards. The KBD-Digital version supports Divar Digital Video Recorders and System4 Multiplexers. Both types can be used with the Bosch VMS and with the VIDOS video management systems.

The IntuiKey accepts both the standard Allegiant RS-485 Keyboard protocol and the Allegiant RS-232 protocol. The Allegiant RS-232 Keyboard protocol is well suited when communicating to a remote KBD-Universal over an IP network.

The IntuiKey can also operate in a Terminal mode using a special RS-232 protocol. This mode allows third-party integrators and internal developers to use the IntuiKey as a customizable user interface.¹

The main Allegiant switcher, the Divar Digital Video Recorder, or the System4 Multiplexer provides power when used in a local configuration. At remote distances, an optional auxiliary power supply (sold separately) provides power.

The keyboard is connected to a system using a supplied 3 m (10 ft) cable. Simply attach the keyboard and the system is operational. No additional programming is required.

The IntuiKey's soft keys provide a menu-driven system for ease of use. The soft keys make it easy for new operators to program and control even the largest systems without memorizing system commands.

The IntuiKey features a quick selection menu function, providing immediate access to the most commonly used screen displays.

The IntuiKey also features a user-friendly menu tree approach for programming all advanced system and camera settings. Languages available via the IntuiKey unit are English, Spanish, Dutch, French, German, Italian, Polish, Portuguese, Turkish, Hungarian, Swedish, Finnish, and Danish. Additional languages can be downloaded from the IntuiKey section of www.boschsecurity.us. The additional languages are: Norwegian, Greek, Czech, Russian, Slovak, Arabic, Simplified Chinese, Traditional Chinese, Korean, and Japanese.

1. Contact your local Bosch Security System sales representative for details about obtaining Terminal mode protocol information.

Certifications and Approvals

Region	Certification	
Europe	CE	DEKLARACJA ZGODNOŚCI EC KBD-DIGITAL/UNIVERSAL DEKLARACJA ZGODNOŚCI EC KBD-MUX/UNIVERSAL
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations	
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards	

Technical Specifications

Electrical

Operating Voltage

12–15 VAC/DC (supplied by one, or a combination of Allegiant switchers, Divar Digital Video Recorder, System4 Multiplexers, or optional power supply)

Power	5 W nominal
Allegiant Signal	RS-485: 2-wire, 9600 Baud, 8 bits, no parity, 1 stop bit RS-232: 3-wire, 9600 Baud, 8 bits, no parity, 1 stop bit
Mux/DVR Signal	RS-485: 2-wire, 19,200 Baud, 8 bits, no parity, 1 stop bit
Terminal Mode Signal	RS-232: 3 wire, 9600 Baud, 8 bits, no parity, 1 stop bit
Console Signal	RS-232 RTS/CTS handshaking, 19,200/57600 Baud, 8 bits, no parity, 1 stop bit

Mechanical

Construction Finish	Charcoal
Width	327 mm (12.9 in.)
Depth	190 mm (7.5 in.)
Height	75 mm (2.9 in.)
Weight	1.1 kg (2.6 lb)
Allegiant Connector	RJ-11 data/power
Mux/DVR Connector	RJ-11 data/power
Aux Power Connector	Bayonet plug (optional)
Console Connector	Male, 9-pin D-sub

Environmental

Enclosure	Splash-resistant
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Temperature

Operating	0°C to 50°C (32°F to 122°F)
Storage	–20°C to 50°C (–4°F to 122°F)
Relative Humidity	10%–90%, non-condensing

Compatibility

Allegiant	Backwards compatible with all systems using variable speed protocol (CPU firmware 5.3 and higher, released 6/94)
Divar	All models
System4	Backwards compatible with all System4 Multiplexers
BVMS	Version 1.10 or later
VIDOS	Version 3.0 or later

Optional Software

IntuiKey Script Application (ISA) The IntuiKey Script Application is a PC-based software program used to customize the macro buttons in the Command Script menu screens of the KBD-Universal model keyboard. Command Script macro functions are applicable when the keyboard is connected to an Allegiant series matrix switcher.

Requirements	Pentium-class PC with Windows NT, 2000, XP, Vista (32 or 64 bit), or Windows Server 2003; One (1) serial port; IntuiKey firmware v1.94 or later
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Availability	Download software from the IntuiKey section at www.boschsecurity.com
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Pentium is a registered trademark of Intel Corporation.

Windows, Windows XP, Windows 2000, Vista and Windows NT® are registered trademarks of Microsoft Corporation.

Allegiant, Divar and System4 are registered by Bosch Security Systems, Inc. in the US Patent Trademark Office.

Ordering Information

KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
Accessories	
KBD-120PS Power Supply Unit 120 VAC/12 VDC, 600 mA, 50/60 Hz power supply and power cable	KBD-120PS
KBD-220PS Power Supply Unit 220-240 VAC/12 VDC, 600 mA, 50/60 Hz power supply and cable	KBD-220PS
LTC 8557/50 Keyboard Extension Kit Hook-up kit for remote keyboard, up to 1.5 km (5000 ft), includes power supply for 230 VAC, 50 Hz	LTC 8557/50
LTC 8557/60 Keyboard Extension Kit Hook-up-kit for remote keyboard, up to 1.5 km (5000 ft), includes power supply for 120 VAC, 60 Hz	LTC 8557/60
LTC 8558/00 Keyboard Cable length 30 m (100 ft)	LTC 8558/00
KBD-RACK Rack mount kit for KBD-Universal and KBD-Digital, 48 cm (19 in.) EIA standard rack unit; W x H: 428 x 220 mm (19 x 8.75 in.); 1 kg (2 lb)	KBD-RACK

LTC 8560 Series Single-channel On-site Receiver/Drivers



Features

- ▶ **Pan/Tilt/Zoom (PTZ) control**
- ▶ **Bi-Phase or RS-232 data input**
- ▶ **Compatible with Allegiant Systems**
- ▶ **Variety of input/output voltages**
- ▶ **Integral local test feature**
- ▶ **Indoor/outdoor applications**

The LTC 8560 Series, the LTC 8562 Series, and the LTC 8563/20 on-site receiver/drivers are control data decoder units and motor drivers for pan/tilt units and zoom lenses. These receiver/drivers are used in conjunction with Allegiant Series or microprocessor-based switcher/controller systems.

Functions

The receiver/driver decodes Allegiant Bi-Phase control data from the switcher/controller system through the LTC 8568 Series Signal Distribution Unit into specific control codes. In addition, the receiver/driver accepts RS-232 control code data generated by the LTC 8780 Data Converter Unit.

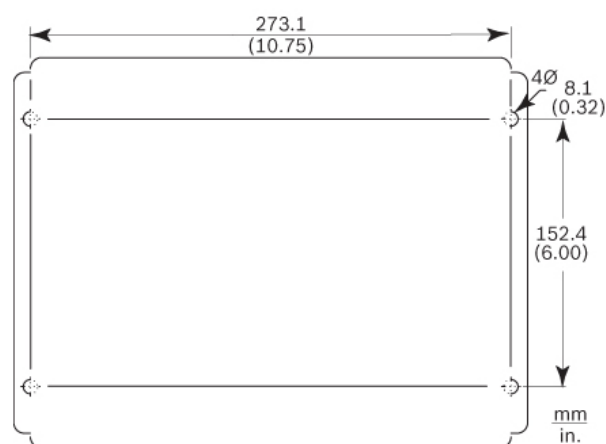
These receiver/drivers are available in a variety of input and output voltage configurations. All units are 50/60 Hz line frequency compatible. All units have low voltage DC lens drivers (6 V or 12 V, selectable) for focus, zoom, and iris with adjustable speed. Auxiliary supply terminals provide power which is fuse-protected at the voltage of the pan/tilt output.

Additional features include a full operating temperature range, an integral local test function, a unique dither feature, polarity reversible lens drive, convenient thumbwheel selectable camera addressing, and a NEMA-4X, IP66 rated environmental enclosure with lockable latches.

Certifications and Approvals

EMC Requirements	CE Immunity, CE Emission Class B, FCC Class B, ICES-003
Safety	CE, UL, cUL

Installation/Configuration Notes



Mounting Hole Pattern

Technical Specifications

Electrical

Pan/Tilt Output	Four (4) function pan/tilt solid state drive with zero crossing turn-on; 1.0 A drive capability
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Lens Output

For Zoom, Focus, and Motorized Iris	6 VDC or 12 VDC, 100 mA maximum
Variable Speed 6 VDC Setting	4 VDC to 8 VDC
Variable Speed 12 VDC Setting	8 VDC to 16 VDC

Mechanical

Size (W x D x H)	295 x 241 x 165 mm (11.6 x 9.5 x 6.5 in.)
Weight	6.8 kg (15 lb)

Environmental**Temperature**

• Operating	–40°C to 60°C (–40°F to 140°F)
• Storage	–40°C to 70°C (–40°F to 158°F)
Humidity	0% to 95% relative, non-condensing
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 ms, ½ sine
Enclosure Protection	NEMA-4X, IP66

Ordering Information

LTC 8560/50 Single-channel On-site Receiver/Driver 230 VAC pan/tilt voltage, 230 VAC power supply, no auxiliary, 50°Hz	LTC 8560/50
LTC 8560/60 Single-channel On-site Receiver/Driver 120 VAC pan/tilt voltage, 120°VAC power supply, no auxiliary, 50/60 Hz	LTC 8560/60
LTC 8562/50 Single-channel On-site Receiver/Driver 24 VAC pan/tilt voltage, 230 VAC power supply, no auxiliary, 50 Hz	LTC 8562/50
LTC 8562/60 Single-channel On-site Receiver/Driver 24 VAC pan/tilt voltage, 120 VAC power supply, no auxiliary, 50/60 Hz	LTC 8562/60
LTC 8563/20 Single-channel On-site Receiver/Driver 24 VAC pan/tilt voltage, 24 VAC power supply, no auxiliary, 50/60°Hz	LTC 8563/20

LTC 8561, LTC 8564/20, LTC 8566 Series Single-channel On-site Receiver/Drivers



Features

- ▶ Full-featured pan/tilt/zoom/aux control
- ▶ Auto-pan/random pan
- ▶ Bi-Phase or RS-232 data input
- ▶ 99 Pre-positions with tour capability
- ▶ Pre-positions compatible with 360° continuous pan/tilt drives
- ▶ Integral local test feature

The LTC 8561 Series, LTC 8564/20, and LTC 8566 Series On-site Receiver/Drivers are control data decoder units and motor drivers for pan/tilt units and zoom lenses. These receiver/drivers are used in conjunction with Allegiant® Series Microprocessor-based Switcher/Controller Systems.

The receiver/driver decodes Allegiant Bi-Phase control data from the switcher/controller system through the LTC 8568/00 Signal Distribution Units into specific control codes. In addition, the receiver/driver will accept RS-232 control code data generated by the LTC 8780 Series Data Converter Unit.

These receiver/drivers are available in a variety of input and output voltage configurations. All units are 50/60 Hz line frequency compatible. All units have low voltage DC lens drivers (6 volts or 12 volts selectable) for focus, zoom, and iris with adjustable speed. There are also four auxiliary outputs. One is a solid state relay with zero crossing switching fixed to the same voltage as the pan/tilt output. The others are relays which can supply voltage

through contacts (normally open or normally closed) to control lights or other devices at the remote site. Auxiliary supply terminals provide power which is fuse-protected at the voltage of the pan/tilt output.

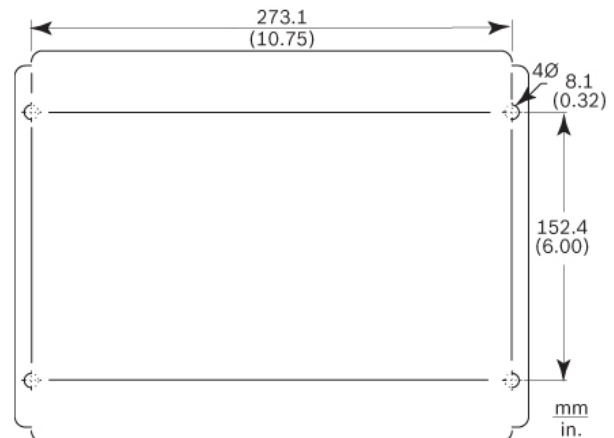
Advanced features include 99 pre-positions when using conventional 355° pan/tilt drivers, 82 pre-positions when using 360° continuous pan/tilt drivers, installer friendly connectors, lockable enclosure latches, 10-bit resolution for improved pan/tilt pre-position accuracy, and automatic pre-position tour capability.

Additional features include a full operating temperature range, an integral local test function, an unrestricted auto-pan feature for all models of pan/tilts, random pan, a unique dither feature, selectable latching or momentary auxiliaries, polarity reversible lens drive, convenient thumbwheel selectable camera addressing, and a NEMA-4X, IP66 rated environmental enclosure.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

Installation/Configuration Notes



Mounting Hole Pattern

LTC 8564/20 AC Supply Wiring Guide

Wire Size		0.5 A Load		1.0 A Load		1.5 A Load		2.0 A Load	
mm ²	AWG	m	ft	m	ft	m	ft	m	ft
0.5	20	30	100	20	70	15	50	12	40
1.0	18	50	150	30	100	25	75	20	70
1.5	16	80	260	50	150	40	130	30	100
2.5	14	130	420	90	290	60	200	50	150
4.0	12	200	650	140	460	110	350	90	290

Table is based on a nominal 24 VAC source with a 10% drop in voltage due to cable loss.

Technical Specifications

Electrical

Model No.	Rated Voltage ¹	Voltage Range	Pan/Tilt, Aux ¹ , & Aux Supply
LTC 8561/60 ²	120 VAC, 50/60 Hz	100 to 130	120 VAC, 50/60 Hz
LTC 8566/60 ^{3,5}	120 VAC, 50/60 Hz	100 to 130	24 VAC, 50/60 Hz
LTC 8566/50 ^{4,5}	230 VAC, 50/60 Hz	198 to 264	24 VAC, 50/60 Hz
LTC 8561/50 ²	230 VAC, 50/60 Hz	198 to 264	230 VAC, 50/60 Hz
LTC 8564/20 ²	24 VAC, 50/60 Hz	20 to 28	24 VAC, 50/60 Hz

1. Power (all models): 15 W at rated voltage (not including pan/tilt).

2. Fuse protected at 2.0 A.

3. Fuse protected at 1.0 A.

4. Fuse protected at 0.4 A.

5. For the LTC 8566/60 and LTC 8566/50, the maximum total current output, including Pan/Tilt output, Auxiliary 1 output, and Auxiliary Supply output, is 2.0 A.

Pan/Tilt Output	4 function pan/tilt solid state drive with zero crossing turn-on; 1.0 A drive capability
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Lens Output

For Zoom, Focus, and Motorized Iris	6 VDC or 12 VDC, 100 mA maximum
Variable Speed 6 VDC Setting	4 VDC to 8 VDC
Variable Speed 12 VDC Setting	8 VDC to 16 VDC
Auto-pan Auxiliary Output ¹	Solid state drive with zero crossing turn-on; 1.0 A drive capability
Auxiliary Output 2, 3, and 4	Relay contact rating 250 VAC, 5.0 A resistive, 0.25 hp
Pre-positions	99, with 4 functions each for use with 355° pan/tilt drivers or 82 with 5 functions each for use with continuous pan/tilt drivers. Pan/tilt positions sensed at 10-bit accuracy. Note that the maximum number of pre-positions available in the system is dependent on the type of control system employed. Refer to the applicable controller specification for exact pre-position capabilities.

Mechanical

Size (H x W x D)	295 x 241 x 165 mm (11.6 x 9.5 x 6.5 in.)
Weight	6.8 kg (15 lb)

Environmental

Temperature

• Operating	–40°C to 60°C (–40°F to 140°F)
• Storage	–40°C to 70°C (–40°F to 158°F)
Humidity	0% to 95% relative, non-condensing
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	50 g, 11 ms, 1/2 sine
Enclosure Protection	NEMA-4X, IP66, Enclosure Type RJ 1008 HPL

Ordering Information

LTC 8561/50 Single-channel On-site Receiver/Driver 230 VAC pan/tilt voltage, 230 VAC power supply, with auxiliary, 50°Hz	LTC 8561/50
LTC 8561/60 Single-channel On-site Receiver/Driver 120 VAC, 50/60 Hz, 100 to 130 V; Pan/Tilt, Aux 1, and Aux Supply: 120 VAC, 50/60 Hz	LTC 8561/60
LTC 8564/20 Single-channel On-site Receiver/Driver 24 VAC, 50/60 Hz, 20 to 28 V; Pan/Tilt, Aux 1, and Aux Supply: 24 VAC, 50/60 Hz	LTC 8564/20
LTC 8566/50 Single-channel On-site Receiver/Driver 230 VAC, 50/60 Hz, 198 to 264 V; Pan/Tilt, Aux 1, and Aux Supply: 24 VAC, 50/60 Hz	LTC 8566/50
LTC 8566/60 Single-channel On-site Receiver/Driver 120 VAC, 50/60 Hz, 100 to 130 V; Pan/Tilt, Aux 1, and Aux Supply: 24 VAC, 50/60 Hz	LTC 8566/60

LTC 8780 Series Data Converter Units



Features

- ▶ **Designed for various applications utilizing Allegiant Series Switchers**
- ▶ **Converts Allegiant Bi-Phase control code to RS-232 and RS-232 to Bi-Phase**
- ▶ **Provides satellite address decoding**
- ▶ **Signal distribution mode provides 15 separate outputs**

The LTC 8780 Series are accessory units that convert the Allegiant system's Bi-Phase control code into RS-232, or convert RS-232 back to Bi-Phase. They provide the capability of transmitting the control code over conventional RS-232 transmission mediums such as phone modems, fiber optics, microwaves, etc.

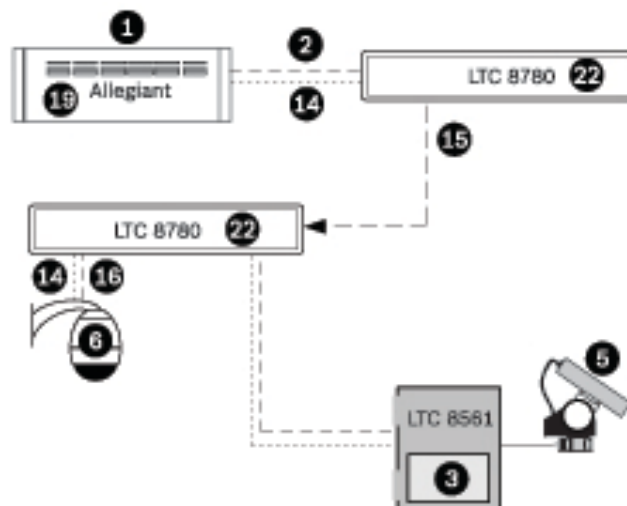
The unit accepts the Bi-Phase control code generated by an Allegiant main CPU bay, Bosch Series DVRs, Signal Distribution units, and LTC 8569 Series Code Merger units.

The LTC 8780 Series are also designed to perform the Satellite selector functions in an Allegiant satellite system configuration. In addition, using its integral signal distribution capability, the LTC 8780 Series can function as remote distribution units for driving up to 120 receiver/driver devices connected to its 15 outputs. As a distribution unit, wiring can be in either a star or daisy chain configuration, and each output is capable of driving eight (8) daisy chained receiver/driver loads, at up to 1.5 km (5000 ft) away using 1 mm² (18 AWG) shielded twisted pair (Belden 8760 or equivalent).

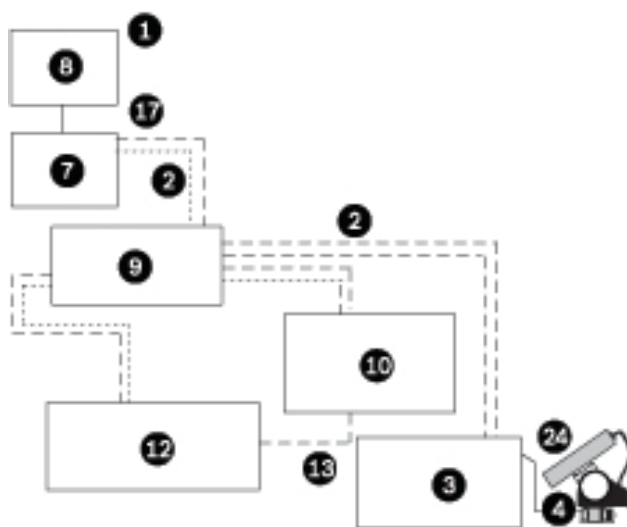
Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards

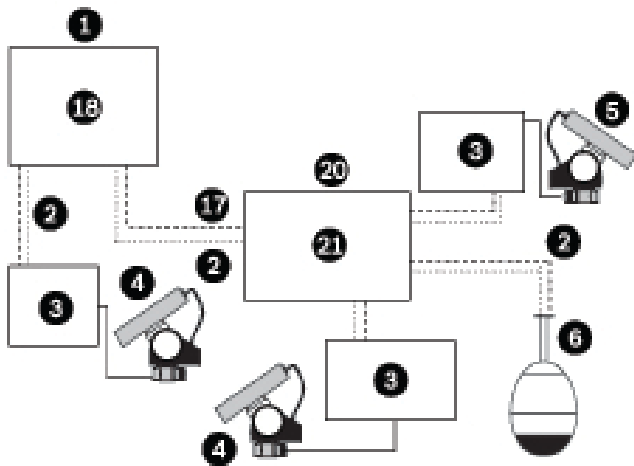
Installation/Configuration Notes



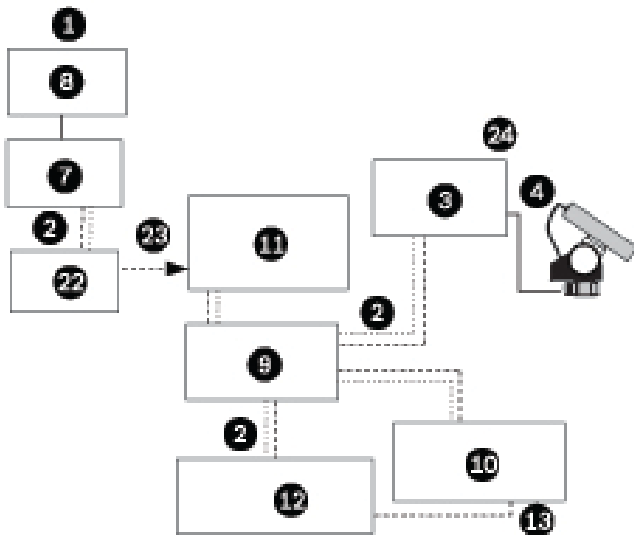
Code Conversion Application (Figure 1)



Satellite Address Decoder Application (Figure 2)



Configured as a Remote Signal Distribution Unit (Figure 3)



Code Conversion Combined with Satellite Address Decoding (Figure 4)

Legend for Figures 1, 2, 3 and 4:

- 1 Main Switcher Control Site
- 2 Bi-Phase Code
- 3 Receiver/Driver
- 4 Pan/Tilt Camera
- 5 Remote Pan/Tilt/Zoom Camera Site
- 6 Typical AutoDome Series Camera
- 7 Signal Distribution Unit
- 8 Main Allegiant Matrix Switcher
- 9 Code Merger Unit
- 10 Data Converter Unit Configured as Satellite Selector
- 11 Data Converter Unit Configured for RS-232 to Bi-Phase
- 12 Satellite Allegiant Matrix Switcher
- 13 RS-232 (Satellite Commands Only)
- 14 Shielded Twisted Pair Cable
- 15 Conventional Asynchronous Simplex RS-232 Transmission Link
- 16 Bi-Phase Code Out

- 17 Up to 1.5 km (5000 ft) Using 1 mm² (18 AWG) Shielded Twisted Pair (Belden 8760 or Equivalent)
- 18 Allegiant Matrix System or the Output of a Controller/Follower
- 19 Allegiant Matrix System or the Output of a Controller/Follower Generating Control Code
- 20 Up to 1.5 km (5000 ft) Using 1 mm² (18 AWG) Shielded Twisted Pair
- 21 Data Converter Unit Configured for Signal Distribution
- 22 Data Converter Unit Configured for Bi-Phase to RS-232
- 23 Conventional RS-232 Link
- 24 Satellite Site

Technical Specifications

Electrical

Model No.	Rated Voltage	Voltage Range
LTC 8780/50	230 VAC, 50/60 Hz	198 to 264
LTC 8780/60	120 VAC, 50/60 Hz	108 to 132
Power at Rated Voltage	4 W	
Indicators	Power: Green LED Code In: Green LED RS-232 In: Green LED Code Out: Red LED RS-232 Out: Red LED	

Connectors

Inputs	Bi-Phase control code: One (1), 15-pin connector (mating connector supplied) RS-232: One (1), 9-pin male connector (pin compatible with industry standard modem cable (mating cable not supplied))
Outputs	Bi-Phase control code: Three (3), 15-pin connectors providing a total of 15 separate Bi-Phase outputs (mating connectors supplied) Console: One (1), 9-pin male connector (mating cable compatible with Allegiant Console port supplied)
AC Input	3-wire power cord with grounded plug; 1.8 m (6 ft) long

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal
Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11 x 1.59 in.)
Weight	1.6 kg (3.5 lb)

Environmental

Temperature	Operating: -18°C to 50°C (0°F to 122°F) Storage: -40°C to 60°C (-40°F to 140°F)
Humidity	10% to 90% relative, non-condensing
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
Shock	30 g, 11 ms, ½ sine

Options

LTC 9101/00 Rack Kit	For mounting one or two units in an EIA 48 cm (19 in.) rack
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Height	One (1) standard rack unit
Width	One (1) standard rack unit

Ordering Information

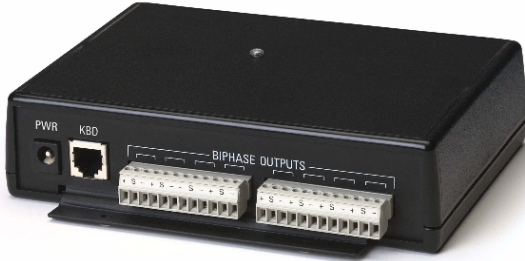
LTC 8780/50 Data Converter Unit	LTC 8780/50
Allegiant biphas control code to RS-232, 230 VAC, 50 Hz	

LTC 8780/60 Data Converter Unit	LTC 8780/60
Allegiant Biphas control code to RS-232, 115 VAC, 60 Hz	

Accessories

LTC 9101/00 Rack Kit	LTC 9101/00
Rack kit for up to two half rack products, with blank, 1.75-inch high	

LTC 8786 Series RS-232 to Biphase Converter



Features

- ▶ For use with PC or other devices running user-supplied video controller software
- ▶ Provides up to 16 Bi-Phase control code outputs
- ▶ Each output operates up to 8 devices in a daisy chain
- ▶ Compact design

The LTC 8786 Series of data converters are designed to convert Bosch "Receiver/Driver and AutoDome RS-232 Control Code Protocol" into Allegiant Bi-Phase control code.

These units are specifically designed to transform a single data output from a PC-based DVR (or a similar device) into multiple control code outputs for operating AutoDome cameras.

The Bosch "Receiver/Driver and AutoDome RS-232 Control Code Protocol" is a simplex RS-232 data format designed to communicate with the Bosch line of receiver/drivers, AutoDome cameras, LTC 8786 converters, and other compatible accessory devices. Complete information on the protocol can be obtained by downloading the manual from the AutoDome section of www.boschsecuritysystems.com.

The input RS-232 baud rate of the LTC 8786 Series is fixed at 9600 baud, 1 stop bit, 8 data bits, no parity, and no handshake. The LTC 8786 Series units can be connected directly to the RS-232 serial port of a PC using an industry standard null modem cable. If another connection type is required, an interface cable can easily be constructed using the supplied 9-Pin D connector.

Certifications and Approvals

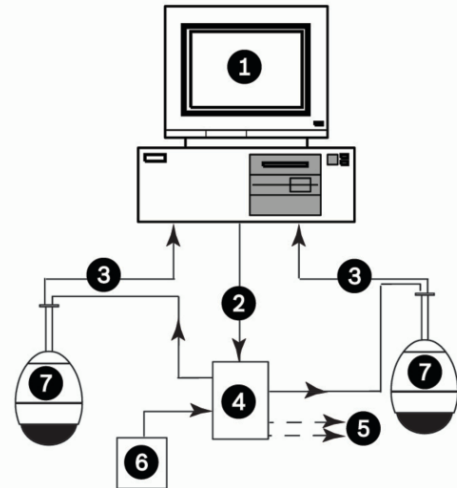
Agency Certifications

EMC Immunity	EN50130-4
EMC Emission	EN55022-1, FCC Part 15, Class A

Safety

Converter	CE, LVD 73/23/EEC
Power Supply Adapter	CE, UL, CSA, TUV

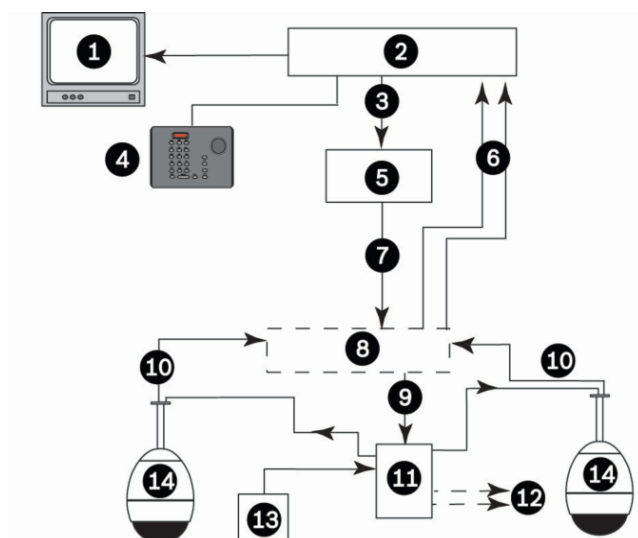
Installation/Configuration Notes



Typical Configurations

Using PC as a Source of RS-232 Data

- 1 Typical PC with Video Capture Card(s) or Other Device Running User-supplied Video/Control Software
- 2 RS-232 Data
- 3 Video Signal
- 4 LTC 8786 Converter
- 5 Up to 16 Bi-Phase Control Code Outputs
- 6 LTC 8786 Power Supply Adapter
- 7 Typical AutoDome Cameras or Allegiant Receiver/Driver Units



When Used as Remote RS-232 to Bi-Phase Converter

- 1 Video Monitor
- 2 Allegiant System
- 3 Bi-Phase Data
- 4 Allegiant Keyboard
- 5 LTC 8780 Data Converter
- 6 Video Signal
- 7 RS-232 Data
- 8 Video and RS-232 Communication Link
- 9 RS-232 Data
- 10 Video Signal
- 11 LTC 8786 Converter
- 12 Up to 16 Bi-Phase control code outputs
- 13 LTC 8786 Power Supply Adapter
- 14 Typical AutoDome Cameras or Allegiant Receiver/Driver Units

Mechanical

Case	Black plastic with metal mounting flanges
Dimensions (Overall) (W x D x H)	154 x 132 x 38 mm (6.08 x 5.25 x 1.5 in.)
Weight	0.132 kg (0.7 lb)

Environmental

Operating Temperature Range	0°C to 40°C (32°F to 144°F)
Operating Humidity	10% to 90% non-condensing

Ordering Information

LTC 8786/50 RS-232 to Biphase Converter with 16 Biphase outputs, 220-240 VAC, 50/60 Hz, 195.5-253 VAC	LTC 8786/50
LTC 8786/60 RS-232 to Biphase Converter with 16 Biphase outputs, 120 VAC, 50/60 Hz, 105-132 VAC	LTC 8786/60

Technical Specifications

Electrical

Model No. ¹	Rated Voltage	Voltage Range
LTC 8786/60	120 VAC, 50/60 Hz	105-132 VAC
LTC 8786/50	220-240 VAC, 50/60 Hz	195.5-253 VAC

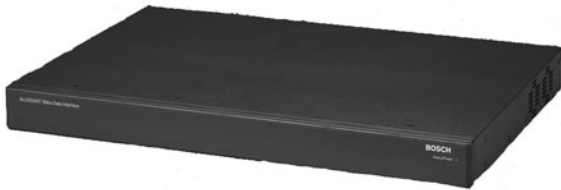
1. Includes applicable power supply adapter.

Nominal Power	3 W (at rated voltage)
Indicator	3 W (at rated voltage)

Connectors

Data In	9-pin D Connector (a 9-pin adapter is supplied), RJ-11
Bi-Phase Output	Removable terminal blocks with three connections: (+), (-), and (S [Shield]) for each of the sixteen Bi-Phase code outputs
Power Connector	1.8 m (5.75 ft) power supply cable with bayonet type plug
Transmission Distance	1.5 km (5000 ft) using 1 mm ² (18AWG) shielded twisted pair cable (Belden 8760 or equivalent)

LTC 8016/90 Allegiant Bilinx Data Interface



Features

- ▶ **Bilinx technology interface for Allegiant Series matrix switcher/controllers**
- ▶ **Up-the-coax Pan/Tilt/Zoom (PTZ), auxiliary, and pre-position control**
- ▶ **Down-the-coax event reporting**
- ▶ **Auto-sensing setup for simplified installation**
- ▶ **Data input allows other devices to control Bilinx PTZ cameras**
- ▶ **Cascade units to control up to 496 Bilinx cameras**

The LTC 8016/90 Allegiant Bilinx Data Interface unit is an accessory used for communicating over-the-coax, with up to 16 Bilinx-capable AutoDome® and/or Dinion™ Series cameras. Compatible with all seven Allegiant Series matrix switcher/controllers, the LTC 8016 provides complete control of pan/tilt/zoom, auxiliaries, and pre-position functions of Bilinx enabled AutoDome Series cameras. In addition, complete programming of Dinion Series cameras and AutoDomes via their on-screen menus is supported.

Functions

Bilinx technology also supports camera-generated event reporting to the Allegiant. This technology allows remote alarm inputs and motion event data to be sent to the Allegiant without the need for additional wiring between the camera site and the main control location.

The LTC 8016 is designed so that other Bi-Phase code generating products, like Bosch Digital Video Recorders, can be used with the unit for control of PTZ functions and camera menu access over the video cable. This high level of flexibility provides a low cost per channel solution whenever control and configuration of remote cameras is needed.

With Bilinx technology, installation costs are reduced because no additional data communication cabling to the camera site is required. Installation time is also reduced; once the cameras and data cable to the LTC 8016 are connected, and its group ID number is set, all other internal settings are configured automatically.

Use of the LTC 8016 also reduces camera installation time because there is no need to set AutoDome site addresses. At initial connection of an AutoDome camera to the LTC 8016, its identification is automatically established.

The LTC 8016 is supplied in an enclosure compatible with mounting in an EIA 48 cm (19 in.) rack, requiring only a 1-unit rack height. To support large systems, up to 31 units can be cascaded, comprising up to 496 Bilinx-compatible cameras.

The LTC 8016 can also be used to transmit Bilinx communications over a number of video transmission systems. Example devices include fiber optic links and external balun devices that use CAT5 twisted pair cables for video communication.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

Technical Specifications

Electrical

Voltage Range	108 to 264 VAC, 50/60 Hz
Power at Rated Voltage	15 W

Maximum Video Signal Distances

Coax	Up to 300 m (1000 ft) using standard CCTV-grade RG-59U with copper center conductor and copper braided shield; up to 600 m (2000 ft.) using CCTV-grade RG-11 or RG-6.
Fiber	Up to 600 m (2000 ft) using LTC 4630 and LTC 4631 Series fiber optic modules. Note: This distance includes the length of coax cables used between the devices and the fiber optic link.
Other	Up to 230 m (750 ft) using CAT5E cable that meets ANSI/TIA/EIA-568-A requirements with NV-211 or NV-214 A-M BNC-to-twisted Balun devices (or similar passive device pair). Note: When using twisted pair links of this type, some degradation in video quality may be experienced at distances beyond 150m (500ft).

Front Panel Indicators

Status / Power	LED
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Rear Panel Indicators

System Data Link Indicator	Green LED
Data Activity Indicator	Yellow LED
Bi-Phase Code Indicator	Green LED

Bilinx Video Signal Presence	One (1) green LED for each of 16 channels
Ethernet Port	Green LED indicates link; Yellow LED indicates activity
Rear Panel Controls	
Group ID	Three (3) rotary switches
Rear Panel Connectors	
Bilinx Video Inputs	16 BNC connectors; accepts standard NTSC/PAL baseband composite video signals or video signals from Bilinx-capable cameras; 0.5–1.4 Vp-p; 75 Ohm terminated; TVS protected inputs provide improved protection against transients
Video Outputs	Male 34-pin video ribbon connector; provides 16 video outputs (unity gain using active circuitry); mating 2 m (6 ft) 16-channel LTC 8809/00 cable included
Bi-Phase Data Interface	6-position removable terminal block with "+", "-", and "shield" input connections and "+", "-", and "shield" looping output connections, with attached end-of-line termination resistor
PC Interface	Male 9-pin sub D-connector
RS-232 Data Interface ¹	Female 9-pin sub D-connector for Allegiant RS-232 interface
RS-485 Data Interface ¹	Female 9-pin sub D-connector for Allegiant RS-485 interface port connection
RS-485 'Looping' Data Interface ¹	Female 9-pin sub D-connector, for data interface to cascaded LTC 8016 unit
<small>1. One (1), 2 m (6 ft) data interface cable is supplied for use with the Allegiant RS-232 interface, the Allegiant RS-485 interface, or the cascade configuration looping connection.</small>	
Ethernet Interface	RJ-45 connector, supporting 10/100 BaseT (reserved for future use)
Power Cord	Two (2) detachable 3-wire IEC cords with grounded plug, 1.83 m (6 ft.); one with European continental plug type and one with US plug type
Environmental	
Temperature	
Operating	0°C to 50°C (32°F to 122°F)
Storage	-10°C to 70°C (14°F to 158°F)
Humidity	0% to 90% relative, non-condensing
Mechanical	
Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal case
Dimensions (W x D x H)	440 x 305 x 40 mm (17.3 x 12 x 1.7 in.)
Weight	3.8 kg (8.5 lb)
Rack-mount Kit (included)	For mounting unit in an EIA 48 cm (19 in.) rack

Optional Accessories**LTC 8508/01 Ribbon-to-BNC Interface Cable**

Interface cable with a 34-pin ribbon cable on one end and 16 male BNC connectors on the other end. This cable is required when the LTC 8016 unit will be connected to control system devices that do not contain a 34-pin ribbon cable connector.

LTC 8807/00 BNC Panel Interface panel used to convert video ribbon cables from up to two LTC 8016 units into 32 standard female BNC connectors. Useful when the LTC 8016 unit will be separated from the control unit beyond the 2 m (6 ft) distance allowed by the video ribbon cable supplied with the unit.

LTC 4630, LTC 4631 Fiber Optic Series modules compatible with Bilinx communication. Available in surface-mount and rack-mount models. Refer to the LTC 4600 Series data sheet for complete information on these products.

NV-211 or NV-214 A-M BNC-to-twisted pair adaptors passive (non-amplified) devices compatible with Bilinx technology, allowing transmission of real-time monochrome or color video over unshielded twisted pair (UTP) telephone wire. Refer to the NV-214 A-M Series data sheet for complete information on these products.

Compatibility

Allegiant Matrix Switchers	Requires an Allegiant CPU firmware 8.6 or later (released May 2004)
AutoDome Cameras	All models manufactured October 2003 (version 5.11), or later
Dinion Cameras	Dinion Series manufactured March 2004, or later
Bi-Phase Devices	Any product generating standard Allegiant Bi-Phase Control Code protocol

Ordering Information

LTC 8016/90 Allegiant Bilinx Data Interface	LTC 8016/90
Accessories	
LTC 8508/01 Ribbon-to-BNC interface cable for LTC 8016, with a 34-pin ribbon cable on one end and 16 male BNC connectors on the other end, 1 m (3 ft)	LTC8508/01
LTC 8807/00 BNC Panel 32 channel video interconnect panel, for use with up to 2 LTC 8809 video ribbon cables	LTC 8807/00
LTC 463x Fiber optics series Fiber optic modules compatible with Bilinx communication. Available in surface-mount and rack-mount models. Refer to the LTC 4600 Series Data Sheet for complete information on these products.	LTC463x

LTC 8782 Series Code Translator



Features

- ▶ Supports many CCTV manufacturers protocols
- ▶ Provides full pan/tilt/zoom (PTZ) code conversions
- ▶ Incorporates front panel diagnostic indicators
- ▶ Convenient EIA 48 cm (19 in.) rack-mount included

The LTC 8782 Series Code Translators are accessory units that convert Biphase code to other manufactures' control codes, or converts other manufactures' codes to Biphase. Many of the most popular protocol codes are supported, including Pelco, Vicon, American Dynamics, Sensormatic, Kalatel, Diamond Electronics, and Javelin. Fixed and variable speed codes are supported where applicable. The LTC 8782 Series Code Translators have four independent outputs. Removable screw terminal blocks are used for input and output connections. Front panel LEDs indicate the status of power, data receive, and data transmit. The translator comes supplied in an EIA 48 cm (19 in.) rack-mount adapter that can hold up to three units.

System Overview

Biphase to "Others" Code

Model No. ¹	Manufacturer's Protocol
LTC 8782/x0-02	American Dynamics–Manchester
LTC 8782/x0-14	Cohu–RS-422
LTC 8782/x0-05	Diamond Electronics–RS-422
LTC 8782/x0-11	Javelin–RS-232
LTC 8782/x0-04	Kalatel–RS-422
LTC 8782/x0-13	PanasonicRS-485
LTC 8782/x0-10	Pelco–RS-422
LTC 8782/x0-12	Philips–RCL

Model No. ¹	Manufacturer's Protocol
LTC 8782/x0-03	Sensormatic–RS-422
LTC 8782/x0-01	Vicon–RS-422

1. x = 6 for 120 VAC and 5 for 230 VAC

"Others" to Biphase Code

Model No. ²	Manufacturer's Protocol
LTC 8782/x0-22	American Dynamics–Manchester
LTC 8782/x0-25	Diamond Electronics–RS-422
LTC 8782/x0-31	Javelin–RS-232
LTC 8782/x0-24	Kalatel–RS-422
LTC 8782/x0-30	Pelco–RS-422
LTC 8782/x0-32	Philips–RCL
LTC 8782/x0-21	Vicon–RS-422

2. x = 6 for 120 VAC and 5 for 230 VAC

Functions

Bosch Biphase Code to "Others"

LTC 8782/x0-02–Bosch Biphase to American Dynamics Manchester

The LTC 8782/x0-02 is a Biphase to American Dynamics code translator to permit control of American Dynamics receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in American Dynamics Manchester protocol. The translator can be programmed by internal switches for the following:

- Offset the Biphase addresses to one of 64 American Dynamics address blocks that support up to 64 cameras each. In large systems, 64 translators can be used to support up to 4,096 cameras.
- Support either fixed or variable speed American Dynamic protocol.

LTC 8782/x0-14–Bosch Biphase to Cohu RS-422

The LTC 8782/x0-14 is a Biphase to Cohu code translator to permit control of Cohu receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Cohu RS-422 protocol. The translator can be programmed by internal switches for the following:

- Offset the Biphase addresses to one of 8 Cohu address blocks that support up to 223 cameras each. In large systems, eight translators can be used to support up to 1,784 cameras. Cohu code can be set to either "3830" or "MPC" protocol.

LTC 8782/x0-05–Bosch Biphase to Diamond Electronics RS-422

The LTC 8782/x0-05 is a Biphase to Diamond Electronics code translator to permit control of Diamond Electronics receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Diamond Electronics RS-422 protocol. The translator can be programmed by internal switches for the following functions:

- Offset the Biphase addresses to one of eight (8) Diamond Electronics address blocks that support up to 255 cameras each. In large systems, 8 translators can be used to support up to 2,048 cameras.
- Default iris mode can be set to either Auto or Manual.

LTC 8782/x0-11–Bosch Biphase to Javelin RS-232

The LTC 8782/x0-11 is a Biphase to Javelin code translator to permit control of Javelin receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Javelin RS-232 protocol. The translator supports 15 Javelin prepositions and the ability to set Javelin camera movement limits.

LTC 8782/x0-04–Bosch Biphase to Kalatel RS-422

The LTC 8782/x0-04 is a Biphase to Kalatel code translator to permit control of Kalatel receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Kalatel RS-422 protocol. The translator can be programmed by internal switches for the following:

- Either Kalatel Digiplex III or Digiplex II code type can be selected.
- Offset the Biphase addresses to one of four (4) Kalatel Digiplex II address blocks that support up to 96 cameras each. In large systems, four (4) translators can be used to support up to 384 cameras.
- Offset the Biphase addresses to one of 4 Kalatel Digiplex III address blocks that support up to 256 cameras each. In large systems, four (4) translators can be used to support up to 1024 cameras.
- Support output baud rates of 2400 and 4167 for Digiplex II, 2400 and 4800 for Digiplex III.

LTC 8782/x0-13–Bosch Biphase to Panasonic RS-485

The LTC 8782/x0-13 is a Biphase to Panasonic code translator to permit control of Panasonic receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Panasonic RS-485 protocol. The translator can be programmed by internal switches for the following:

- Offset the Biphase addresses to one of 32 Panasonic address blocks that support up to 96 cameras each. In large systems, 32 translators can be used to support up to 3,072 cameras.
- Support output baud rates of 2400, 4800, 9600, and 19.2K.
- Support either variable or two fixed speed code.

LTC 8782/x0-10–Bosch Biphase to Pelco RS-422

The LTC 8782/x0-10 is a Biphase to Pelco code translator to permit control of Pelco receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Pelco RS-422 protocol. The translator can be programmed by internal switches for the following:

- Support either Pelco "P" or "D" output code.
- Support up to 256 addresses in "D" code, and 16 or 32 addresses in "P" code.
- Support Pelco output baud rate of 2400 in "D" code.
- Support Pelco output baud rate of 4800 or 9600 in "P" code.
- Support Pelco "turbo speed."

LTC 8782/x0-12–Bosch Biphase to Philips RCL

The LTC 8782/x0-12 is a Biphase to Philips RCL code translator to permit control of Philips RCL receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Philips RCL protocol. The translator can be programmed by internal switches for either 50 Hz or 60 Hz RCL rates.

LTC 8782x03–Bosch Biphase to Sensormatic RS-422

The LTC 8782/x0-03 is a Biphase to Sensormatic code translator to permit control of Sensormatic receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Sensormatic RS-422 protocol. The translator can be programmed by internal switches for the following:

- Offset the Biphase addresses to one of 32 Sensormatic address blocks that support up to 256 cameras each. In large systems, 32 translators can be used to support up to 8,192 cameras.
- Support "group" sizes of either 256 or 99.
- Support either Sensormatic variable or two fixed speed code.

LTC 8782/x0-01–Bosch Biphase to Vicon RS-422

The LTC 8782/x0-01 is a Bosch Biphase to Vicon code translator to permit control of Vicon VPS system receivers from Biphase controllers. It receives Biphase code and transmits the appropriate commands in Vicon RS-422 protocol. The translator can be programmed by internal switches for the following:

- Offset the Biphase addresses to one of four (4) Vicon address blocks that support up to 255 cameras each. In large systems, four (4) translators can be used to support up to 1,020 cameras.
- Support output baud rates of 9600 or 4800.

"Others" to Bosch Biphase Code

LTC 8782/x0-22–American Dynamics Manchester to Bosch Biphase

The LTC 8782/x0-22 is an American Dynamics to Biphase code translator to permit control of Biphase receivers from American Dynamics controllers. It receives American Dynamics Manchester code and transmits the appropriate commands in Biphase protocol. Supports full range of Bosch Biphase Aux and preposition numbers. The translator can be programmed by internal switches for the following:

- Offset the 64 camera American Dynamic address block to one of 32 Biphase address blocks that support up to 64 cameras each. In large systems, 32 translators can be used to support up to 2,048 cameras.
- Accept either fixed or variable speed American Dynamics code.
- Generate either fixed or variable speed Biphase code.

LTC 8782/x0-25–Diamond Electronics RS-422 to Bosch Biphase

The LTC 8782/x0-25 is a Diamond Electronics to Biphase code translator to permit control of Biphase receivers from Diamond Electronics controllers. It receives Diamond Electronics RS-422 code and transmits the appropriate commands in Biphase protocol. The translator can be programmed by internal switches to generate either fixed or variable speed Biphase code.

LTC 8782/x0-31–Javelin RS-232 to Bosch Biphase

The LTC 8782/x0-31 is a Javelin to Biphase code translator to permit control of Biphase receivers from Javelin controllers. It receives Javelin RS-232 code and transmits the appropriate commands in Biphase protocol. The translator can be programmed by internal switches to generate either fixed or variable speed Biphase code.

LTC 8782/x0-24–Kalatel RS-422 to Bosch Biphase

The LTC 8782/x0-24 is a Kalatel to Biphase code translator to permit control of Biphase receivers from Kalatel controllers. It receives Kalatel RS-422 code and transmits the appropriate commands in Biphase protocol. The translator will automatically detect the type of Kalatel input code and indicate the type and baud rate on a front panel LED indicator. Supports full range of Bosch Biphase Aux and preposition numbers. The translator can be programmed by internal switches for the following:

- Generate either fixed or variable speed Biphase code.
- Accept either fixed or variable speed Kalatel code.

LTC 8782/x0-30–Pelco RS-422 to Bosch Biphase

The LTC 8782/x0-30 is a Pelco to Biphase code translator to permit control of Biphase receivers from Pelco controllers. It receives Pelco RS-422 code and transmits the appropriate commands in Biphase protocol. Supports full range of Bosch Biphase Aux and preposition numbers. The translator can be programmed by internal switches for the following:

- Generate either fixed or variable speed Biphase code.
- Accept either Pelco "P" or "D" output code.
- Support either 4800 or 9600 baud in Pelco "P" code.
- Support 2400 baud in Pelco "D" code.

LTC 8782/x0-32–Philips RCL to Bosch Biphase

The LTC 8782/x0-32 is an RCL to Biphase code translator to permit control of Biphase receivers from RCL controllers. It receives Philips RCL code and transmits the appropriate commands in Biphase protocol. The translator can be programmed by internal switches for the following:

- Generate either fixed or variable speed Biphase code.
- Accept latching or normal Aux commands.

LTC 8782/x0-21–Vicon RS-422 to Bosch Biphase

The LTC 8782/x0-21 is a Vicon to Biphase code translator to permit control of Biphase receivers from Vicon VPS controllers. It receives Vicon RS-422 code and transmits the appropriate commands in Biphase protocol. Supports full range of Bosch Biphase Aux and preposition numbers. The translator can be programmed by internal switches for the following:

- Generate either fixed or variable speed Biphase code.

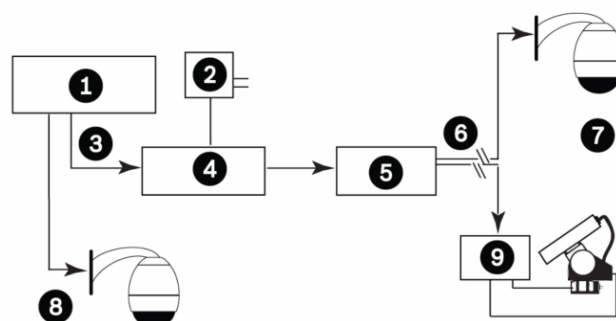
- Accept either fixed or variable speed Vicon code.
- Support either 4800 or 9600 Vicon baud rates.

Certifications and Approvals**Power Supply**

Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards
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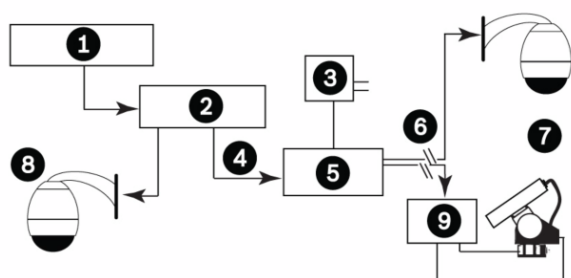
LTC 8782 Series Translator

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
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Installation/Configuration Notes

Typical Biphase to "Others" Configuration

#	Description
1	Bosch Controller Generating Biphase Code
2	Biphase Code
3	Power Supply
4	LTC 8782 Translator
5	"Others" Code Distribution
6	"Others" Control Code
7	"Others" Dome and P/T/Z Cameras
8	Bosch Dome Camera
9	"Others" Receiver/Driver



Typical "Others" to Biphase Configuration

#	Description
1	"Others" Controller
2	"Others" Code Distribution Unit
3	Power Supply
4	"Others" Code
5	LTC 8782 Translator
6	Biphase Control Code
7	Bosch Dome and P/T/Z Cameras
8	"Others" Dome Camera
9	Allegiant Receiver/Driver

Parts Included

Qty.	Components
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1	Code Translator Unit
1	Power Supply
	LTC 8782/60 Series: TC120PS
	LTC 8782/50 Series: TC220PS
1	Plastic Bezel
1	Rack-mount Hardware Kit
1	Instructions for Use

Technical Specifications

Electrical

Input Voltage (Adapter Included)

LTC 8782/60 Series	120 VAC
LTC 8782/50 Series	230 VAC

Voltage Range

LTC 8782/60 Series	100–132 VAC
LTC 8782/50 Series	198–264 VAC

Translator Model Number	Voltage Range @ Specified Current
LTC 8782/x0-01	9–18 VAC/VDC @ 300 ma
LTC 8782/x0-03	
LTC 8782/x0-04	
LTC 8782/x0-05	
LTC 8782/x0-10	
LTC 8782/x0-11	
LTC 8782/x0-12	
LTC 8782/x0-13	
LTC 8782/x0-14	
LTC 8782/x0-02	12–18 VAC/VDC @ 150 ma
LTC 8782/x0-21	
LTC 8782/x0-22	
LTC 8782/x0-24	
LTC 8782/x0-25	
LTC 8782/x0-30	
LTC 8782/x0-31	
LTC 8782/x0-32	

Environmental

Temperature

Operating	4°C to 50°C (39°F to 122°F)
Storage	–40°C to 70°C (–40°F to 158°F)

Humidity	< 90% non-condensing
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Mechanical

Finish	Black
Dimensions (H x W x D)	4.1 x 14.0 x 14.0 cm (1.6 x 5.5 x 5.5 in.)
Weight	0.7 kg (1.5 lb)
Rack-mount Kit (included)	For EIA 48 cm (19 in.) rack. One (1) unit high rack kit will hold up to three (3) units across.
Dimensions (H x W)	4.5 x 48.3 cm (1.8 x 19.0 in.)
Connectors	Screw terminals

Ordering Information

LTC 8782/50-01 Code Translator Biphase to Vicon RS-422 translator, to RCL translator 230 VAC, 50/60 Hz	LTC 8782/50-01
LTC 8782/50-02 Code Translator Biphase to American Dynamics Manchester translator, 230 VAC, 50/60 Hz	LTC 8782/50-02
LTC 8782/50-03 Code Translator Biphase to Sensormatic RS-422 translator, 230 VAC, 50/60 Hz	LTC 8782/50-03
LTC 8782/50-04 Code Translator Biphase to Kalatel RS-422 translator, 230 VAC, 50/60 Hz	LTC 8782/50-04

Ordering Information	
LTC 8782/50-05 Code Translator Biphase to Diamond RS-422 translator, 230 VAC, 50/60 Hz	LTC 8782/50-05
LTC 8782/50-10 Code Translator Biphase to Pelco RS422 code translator, 230 VAC, 50/60 Hz	LTC 8782/50-10
LTC 8782/50-11 Code Translator Biphase to Javelin, 230 VAC, 50/60 Hz	LTC 8782/50-11
LTC 8782/50-12 Code Translator Biphase to RCL translator, 230 VAC, 50/60 Hz	LTC 8782/50-12
LTC 8782/50-13 Code Translator Biphase to Panasonic RS-485 translator, 230 VAC, 50/60 Hz	LTC 8782/50-13
LTC 8782/50-14 Code Translator Biphase to Cohu RS-422 translator, 230 VAC, 50/60 Hz	LTC 8782/50-14
LTC 8782/50-21 Code Translator Vicon RS-422 to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-21
LTC 8782/50-22 Code Translator American Dynamics Mancaster to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-22
LTC 8782/50-24 Code Translator Kalatel RS-422 to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-24
LTC 8782/50-25 Code Translator Diamond to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-25
LTC 8782/50-30 Code Translator Pelco to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-30
LTC 8782/50-31 Code Translator Javelin to Biphase, 230 VAC, 50/60 Hz	LTC 8782/50-31
LTC 8782/50-32 Code Translator RCL to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-32
LTC 8782/50-34 Code Translator Cohu RS422 to Biphase translator, 230 VAC, 50/60 Hz	LTC 8782/50-34
LTC 8782/60-01 Code Translator Biphase to VICON RS-422 translator, 120 VAC, 50/60 Hz	LTC 8782/60-01
LTC 8782/60-02 Code Translator Biphase to American Dynamics Manchester, 120 VAC, 50/60 Hz	LTC 8782/60-02
LTC 8782/60-03 Code Translator Biphase to Sensormatic RS-422 translator, 120 VAC, 50/60 Hz	LTC 8782/60-03
LTC 8782/60-04 Code Translator Biphase to Kalatel RS-422 translator, 120 VAC, 50/60 Hz	LTC 8782/60-04
LTC 8782/60-05 Code Translator Biphase to Diamond RS-422 translator, 120 VAC, 50/60 Hz	LTC 8782/60-05
LTC 8782/60-10 Code Translator Biphase to Pelco code translator, 120 VAC, 50/60 Hz	LTC 8782/60-10

Ordering Information	
LTC 8782/60-12 Code Translator Biphase to RCL translator, 120 VAC, 50/60 Hz	LTC 8782/60-12
LTC 8782/60-13 Code Translator Biphase to Panasonic RS-485 translator, 120 VAC, 50/60 Hz	LTC 8782/60-13
LTC 8782/60-14 Code Translator Biphase to Cohu RS-422 translator, 120 VAC, 50/60 Hz	LTC 8782/60-14
LTC 8782/60-21 Code Translator Vicon RS-422 to Biphase translator, 120 VAC, 50/60 Hz	LTC 8782/60-21
LTC 8782/60-24 Code Translator Kalatel RS-422 to Biphase translator, 120 VAC, 50/60 Hz	LTC 8782/60-24
LTC 8782/60-25 Code Translator Diamond to Biphase code translator, 120 VAC, 50/60 Hz	LTC 8782/60-25
LTC 8782/60-30 Code Translator Pelco to Biphase translator, 120 VAC, 50/60 Hz	LTC 8782/60-30
LTC 8782/60-31 Code Translator Javelin to Biphase translator, 120 VAC, 50/60 Hz	LTC 8782/60-31
Accessories	
LTC 9101/00 Rack Kit Rack kit for up to two half rack products, with blank, 1.75-inch high	LTC 9101/00

Accessory Packages for the Allegiant



The Allegiant accessory products provide many optional features to the base Allegiant Video Switcher/Control System. Various accessory products are available, including operator keyboards, code distribution units, data converters, receiver/drivers, and various port expanders. Where applicable, all accessory products are designed to be compatible throughout the Allegiant systems.

In addition to Allegiant accessories, this data sheet also includes brief information on other products typically used with the Allegiant Series of matrix switchers.

In some cases, complete information for a product is found in a separate datasheet.

Accessory Items

Model No.	Description
IntuiKey Series	Keyboard
LTC 8555 Series	Keyboard
LTC 8558/00	Keyboard Extension Cable
LTC 8557 Series	Keyboard Extension Kits
LTC 8568/00	Signal Distribution Unit
LTC 8768/00	Signal Distribution Unit
LTC 8540/00	Alarm Interface Unit
AutoDome Series	PTZ Cameras
LTC 8560 Series	Receiver/Drivers
LTC 8561 Series	Receiver/Drivers
LTC 8562 Series	Receiver/Drivers
LTC 8563 Series	Receiver/Drivers
LTC 8564 Series	Receiver/Drivers
LTC 8566 Series	Receiver/Drivers
LTC 8569 Series	Code Merger Units
LTC 8570 Series	Code Merger Units
LTC 8571 Series	Code Merger Units
LTC 8572 Series	Code Merger Units
LTC 8770 Series	Relay Units
LTC 8712 Series	Console Port Expander Units

Model No.	Description
LTC 8713 Series	Alarm Port Expanders
LTC 8714 Series	Keyboard Port Expanders
LTC 8715 Series	Keyboard Port Expanders
LTC 8780 Series	Data Converter Units
LTC 8782 Series	Code Translator Units
LTC 8785 Series	Code Converter Units
LTC 8786 Series	Code Converter Units
LTC 8016/90	Bilinx Data Interface Unit
LTC 8808/00	Video Interconnect Panel/Cables
LTC 8807/00	Video Interconnect Panel
LTC 8809 Series	Ribbon Cables
LTC 8506/00	Cable, PC-to-Console Port
LTC 8508/01	Ribbon to BNC Interface Cable

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

Technical Specifications

General Specifications

Environmental

Note: Specifications for electronic hardware products are noted below unless otherwise specified in applicable accessory section.

Temperature

Operating	4°C to 50°C (40°F to 122°F)
Humidity	0% to 95% relative, non-condensing
Shock	50 g, 11 ms, ½ sine
Altitude	3000 m (10,000 ft)

IntuiKey Keyboard

The IntuiKey KBD-Universal is a full function keyboard used for control and programming of the Allegiant Series matrix switchers. Backlit LCD screens provide multi-language display of softkey menus and status information. Integral variable speed joystick and zoom lens controls are standard for operating fixed or variable speed pan/tilt/zoom equipped cameras. In addition to the Allegiant Series, the KBD- Universal model IntuiKey can be used to simultaneously control Divar Series DVRs, and System4 Series multiplexers.

The optional PC-based IntuiKey Script Application software package can be used to define softkeys that are used to activate Allegiant system Command Scripts.

The optional KBD-RACK rack-mounting kit is designed to provide vertical, horizontal, or 45 degree inclined mounting into standard EIA 48 cm (19 in.) rack.

Refer to the IntuiKey Series data sheet for complete specifications.

LTC 8555 Series Keyboards

The LTC 8555 Series are compact, full function keyboards for use with Allegiant Series matrix switchers. LED readouts display real time system status information. Includes variable speed joystick and zoom lens controls for operating fixed or variable speed pan/tilt/zoom equipped cameras. The keyboards are available in the following configurations:

Model Number	Top Bezel Graphics	Communication Protocol
LTC 8555/00	English	RS-485
LTC 8555/01	Icons	RS-485
LTC 8555/02	English	RS-232
LTC 8555/03	Icons	RS-232

Electrical

Operating Voltage	12 VAC (supplied by main Allegiant CPU bay or optional Keyboard Extension Kit)
Signal	2 wire RS-485, 9600 baud (LTC 8555/00 and LTC 8555/01 models) 3 wire RS-232, 9600 baud (LTC 8555/02 and LTC 8555/03 models)
Connectors	One (1), 6-contact connector for data/power

Mechanical

Construction/Finish	High impact plastic case with charcoal color
Dimensions (W x D x H)	220 x 51 x 155 mm (8.67 x 2.00 x 6.11 in.)
Weight	0.55 kg (1.22 lb)

LTC 8558/00 Keyboard Extension Cable

Six-conductor extension cable carries data/power for remote IntuiKey Series or LTC 8555 Series keyboards up to 30 m (100 ft) away from main Allegiant CPU bay.

LTC 8557 Series Keyboard Extension Kits

Interface kit used to remote IntuiKey Series or LTC 8555 Series keyboards up to 1.5 km (5000 ft) away from main CPU bay. Customer supplied 0.5 mm² (24 AWG) shielded-twisted pair (Belden 9841 or equivalent) required between main CPU bay site and keyboard site. Kit provides two junction boxes, interface cable, and appropriate keyboard power supply.

Electrical

Model No.	Rated Voltage ¹	Voltage Range	Power
LTC 8557/60	120 VAC, 50/60 Hz	108 to 132	10 W
LTC 8557/50	230 VAC, 50/60 Hz	198 to 264	15 W

1. Input voltage of included power supply.

Indicators	Junction box mounted power LED
Connectors	One (1), 4-position screw terminal block. One (1), 6-contact keyboard cable connector.

Mechanical

Construction/Finish	Surface mountable, flat black painted metal enclosure
Dimensions (W x D x H)	121 x 70 x 35 mm (4.75 x 2.75 x 1.375 in.)
Weight	170 g (6 oz.)

LTC 8568/00 Signal Distribution Unit

Main site Bi-Phase control code distribution and line driver unit for communicating to AutoDome Series cameras, receiver/drivers, switcher/ followers, and Allegiant satellite systems. The unit provides 32 separate outputs for driving up to 256 remote devices. Either “star” or “daisy chain” wiring configurations may be used. Two meter (6 ft) interface cable for data/power between unit and main Allegiant CPU bay supplied. Not applicable to the LTC 8100, LTC 8200, and the LTC 8300 Series systems.

Electrical

Operating Voltage	12 VAC (supplied by main CPU bay)
Power	3 W

Indicators

• Power	LED
• Code	LED

Connectors

Input	One (1), 9-pin Sub D connector for data/power
Outputs	Sixteen, 6-contact removable screw terminal blocks for code output. Maximum transmission distance is 1.5 km (5000 ft) using 1 mm ² (18 AWG) shielded-twisted pair (Belden 8760 or equivalent).

Mechanical

Construction/Finish	Charcoal colored metal enclosure
Dimensions (W x D x H)	445 x 318 x 89 mm (17.5 x 12.5 x 3.5 in.) Integral mounting flanges for EIA 48 cm (19 in.) rack
Weight	1.8 kg (4 lb)

LTC 8768/00 Signal Distribution Unit

Same features and specifications as the LTC 8568/00 except that it contains twice the number of output connectors which provide 64 separate outputs for driving up to 512 remote devices. Not applicable to the LTC 8100, LTC 8200, and the LTC 8300 Series systems.

LTC 8540/00 Alarm Interface Unit

Unit accepts up to 64 contact closures or logic level inputs from remote sensing devices such as door contacts, PIRs, etc. and then reports the “alarm” information to the main Allegiant CPU bay. Alarm inputs may be configured in groups of 32 to accept either normally open or normally closed contacts. Unit also contains eight relay outputs that activate automatically upon alarm conditions. A two meter (6 ft) interface cable for data/power between unit and main CPU bay is supplied. Not applicable to the LTC 8100, LTC 8200, and the LTC 8300 Series systems.

Electrical

Operating Voltage 12 VAC or 12 VDC
(12 VAC is supplied by main CPU bay)

Power 8 W

Indicators

Power LED

Alarm LED; audible tone

Connectors

Alarm Inputs Sixty-four (64); twenty 6-contact removable screw terminal blocks

Alarm Outputs Eight (8) relay outputs (100 VDC, 0.5 A, 10 W); four (4), 6-contact removable screw terminal block.

Data/Power One 9-pin Sub D connector

Mechanical

Construction/
Finish Charcoal colored metal enclosure

Dimensions 445 x 318 x 89 mm (17.5 x 12.5 x 3.5 in.)
(W x D x H) Integral mounting flanges for EIA 48 cm (19 in.) rack

Weight 1.8 kg (4 lb)

AutoDome and AutoDome Easy II Series

The AutoDome® and the AutoDome Easy II Series of cameras integrates high-speed panning and tilting, 360-degree continuous rotation, pre-positions, etc. in a small, easy-to-install lightweight package. These PTZ models are available with various mounting and configuration options for use in both internal and external environments.

Refer to the AutoDome and the AutoDome Easy II Series datasheets for complete specifications.

LTC 8560, LTC 8561, LTC 8562, LTC 8563, LTC 8564, and LTC 8566 Series Receiver/Drivers

These series of on-site receiver/drivers are designed to receive Bi-Phase control code and convert this data into signals for controlling conventional pan/tilt, zoom lenses, and auxiliary functions. Supplied in an environmentally rated enclosure, these series of receiver/drivers are available in both basic and full-featured models. Refer to the chart below for specific model selection based on desired operating voltages and features:

Model	Features	Input Voltage	P/T Output Voltage
LTC 8560/60	Basic	120 VAC	120 VAC
LTC 8560/50	Basic	230 VAC	230 VAC
LTC 8561/60	Full	120 VAC	120 VAC
LTC 8561/50	Full	230 VAC	230 VAC
LTC 8562/60	Basic	120 VAC	24 VAC
LTC 8562/50	Basic	230 VAC	24 VAC
LTC 8563/20	Basic	24 VAC	24 VAC
LTC 8564/20	Full	24 VAC	24 VAC
LTC 8566/60	Full	120 VAC	24 VAC
LTC 8566/50	Full	230 VAC	24 VAC

Refer to the LTC 8560 Series and/or LTC 8561 Series datasheets for complete specifications.

LTC 8569, LTC 8570, LTC 8571, LTC 8572 Series Code Merger Units

Control code merger and line driver units used to combine Allegiant Bi-Phase control code from two (up to four with LTC 8570 and LTC 8572 versions) systems for communicating to AutoDome Series cameras, receiver/drivers, switcher/followers, and Allegiant Satellite systems. The LTC 8569, LTC 8570 Series provides 32 separate outputs capable of driving up to 256 remote devices. The LTC 8571, LTC 8572 Series provides 64 separate outputs capable of driving up to 512 remote devices. Either “star” or “daisy chain” wiring configurations may be used. Two data cables for interface to Allegiant main CPU bays are supplied (four with LTC 8570 and LTC 8572).

Unit will accept signal input either from Allegiant main CPU bay, LTC 8568/00 output, LTC 8780 Bi-Phase output, or an output from another LTC 8569, LTC 8570 Series or LTC 8571, LTC 8572 Series unit. Multiple units may be cascaded to obtain additional outputs.

Electrical

Model No.	Rated Voltage	Voltage Range	Power
LTC 8569/60, LTC 8570/60, LTC 8571/60, LTC 8572/60	120 VAC, 50/60 Hz	108 to 132	12 W
LTC 8569/50, LTC 8570/50, LTC 8571/50, LTC 8572/50	230 VAC, 50/60 Hz	198 to 264	12 W

Indicators

Power LED

Code LED

Connectors

Inputs Two (2), 9-pin Sub D connectors (four (4) with LTC 8570 Series and LTC 8572 Series)

Outputs Sixteen (32 on LTC 8571 and LTC 8572 Series) 6-contact removable screw terminal blocks for code output. Maximum transmission distance is 1.5 km (5000 ft.) using 1 mm² (18 AWG) shielded-twisted pair (Belden 8760 or equivalent).

AC Input 3-wire power cord with grounded plug; 1.8 m (6 ft) long

Mechanical

Construction/
Finish Charcoal colored metal enclosure

Dimensions 445 x 318 x 89 mm (17.5 x 12.5 x 3.5 in.)
(W x D x H) Integral mounting flanges for EIA 48 cm (19 in.) rack

Weight 5.3 kg (11.7 lb)

LTC 8770 Series Relay Units

The LTC 8770 Series are relay units that are designed to operate with devices that generate Allegiant Bi-Phase control code. These devices include the Allegiant series of video matrix switcher/controllers, System4 series of multiplexers, LTC 5136 controller series, etc. The LTC 8770 receives Bi-Phase control signals and opens or closes relays, depending upon the desired operating

mode. Each LTC 8770 unit provides 24 individually isolated relays for connecting to external devices. In addition, six functional operating modes are available, including one user activated test mode.

Electrical

Model No.	Rated Voltage	Voltage Range	Power
LTC 8770/50	230 VAC, 50/60 Hz	198 to 264	8 W
LTC 8770/60	230 VAC, 50/60 Hz	105 to 132	8 W
Indicators	Power and data transmission activity displayed using LEDs. Device number or logical relay number indicated by a 4-position thumbwheel switch located on the rear panel.		

Connectors

Inputs	One (1), 3-pin removable screw terminal connector, located on the rear panel; communication port where Bi-Phase commands are received		
Outputs	Four (4), 12-pin removable screw terminal connectors located on the rear panel; relay contact (0.5 A at 20 VAC/DC and a maximum resistive load of 10 VA) 36 peak volts from either pin of the relay to ground		
AC Input	3-wire power cord with grounded plug; 1.8 m (6 ft) long		

Mechanical

Construction/Finish	Steel chassis with sheet metal cover and plastic bezel. Charcoal colored case.		
Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11 x 1.59 in.)		
Weight	1.9 kg (4.3 lb)		
Optional Rack Mount Kit	LTC 9101/00 (Holds 1 or 2 units)		

LTC 8712 Series CONSOLE Port Expanders

The LTC 8712 Series “expands” an Allegiant system's CONSOLE port to permit up to 4 external computing devices to communicate with the system via RS-232 protocol. Any computing device that can normally communicate directly with an Allegiant via its RS-232 CONSOLE port can be used with these port expanders. The external devices can consist of PCs running the Allegiant system's Master Control Software package, the Allegiant Graphical User Interface (GUI), access control systems, Allegiant series RS-232 keyboards, or other devices utilizing the Allegiant system's Command Console Language (CCL). The LTC 8712 Series can be used with the LTC 8100, LTC 8200, LTC 8300, LTC 8500, LTC 8600, LTC 8800, or LTC 8900 Series systems containing CPU software version 6.5 or higher.

Electrical

Model No.	Rated Voltage	Voltage Range	Power
LTC 8712/60	120 VAC, 50/60 Hz	108 to 132	10 W
LTC 8712/50	230 VAC, 50/60 Hz	198 to 264	10 W
Indicators	Power and data transmission activity displayed using LEDs		

Connectors

Inputs	One (1), 9-pin Sub D connector; provides RS-232 interface to Allegiant bay. Two-meter (6-ft) interconnect cable to main bay supplied		
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Model No.	Rated Voltage	Voltage Range	Power
Outputs	Four (4), 9-pin Sub D connectors for RS-232 interface to up to four external devices		
AC Input	3-wire power cord with grounded plug; 1.8 m (6 ft) long		

Mechanical

Construction/Finish	Steel chassis with sheet metal cover and plastic bezel. Charcoal colored case.		
Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11 x 1.59 in.)		
Weight	1.9 kg (4.3 lb)		
Optional Rack Mount Kit	LTC 9101/00 (Holds 1 or 2 units)		

LTC 8713 Series Alarm Port Expander

The LTC 8713 Series interfaces to a LTC 8500, LTC 8600, LTC 8800, or LTC 8900 Series alarm port to permit additional LTC 8540/00 Alarm Interface units to be connected to the system. A single LTC 8713 series alarm port expander supports up to four LTC 8540/00 alarm interface units. This provides the capability for up to 256 alarm input points. Multiple LTC 8713 units may be combined to provide up to 1024 alarm input points using up to sixteen LTC 8540/00 units. The actual number of units that can be used in a system depends upon the model of the Allegiant system being used. System interconnect cable is included. A separate 12 VAC or DC, 8 W power supply is required for each LTC 8540/00.

Alarm Capacities

Allegiant Model No.	Maximum No. of Alarms	Maximum No. of LTC 8713	Maximum No. of LTC 8540/00
LTC 8500	128	1	2
LTC 8600	512	3	8
LTC 8800	1024	5	16
LTC 8900	1024	5	16

Electrical

Model No.	Rated Voltage	Voltage Range	Power
LTC 8713/60	120 VAC, 50/60 Hz	108 to 132	10 W
LTC 8713/50	230 VAC, 50/60 Hz	198 to 264	10 W
Indicators	Power and data transmission activity displayed using LEDs.		

Connectors

Inputs	One (1), 9-pin Sub D connector; provides RS-232 interface to main Allegiant bay. Two-meter (6-ft) interconnect cable to main bay supplied.		
Outputs	Four (4), non-powered, 9-pin Sub D connectors for RS-232 interface to up to four expanded LTC 8540/00 units. Data cables supplied with LTC 8540/00 are used to connect alarm interfaces to port expander. A separate 12 VAC or DC, 8 W power supply is required for each LTC 8540/00.		
AC Input	3-wire power cord with grounded plug; 1.8 m (6 ft) long		

Mechanical

Construction/ Finish	Steel chassis with sheet metal cover and plastic bezel. Charcoal colored case.
Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11 x 1.59 in.)
Weight	1.9 kg (4.3 lb)
Optional Rack Mount Kit	LTC 9101/00 (Holds 1 or 2 units)

LTC 8714 Series and LTC 8715 Series Keyboard Port Expanders

The LTC 8714 Series and the LTC 8715 Series are port expander accessory units used to provide additional keyboard capacity for LTC 8600, LTC 8800, or LTC 8900 Series Allegiant systems. A single LTC 8714 Series unit can be used to interface up to eight keyboards with an allegiant system. A single LTC 8715 Series is used to interface up to four LTC 8714 Series expanders in a system. Multiple LTC 8715 Series expanders can be used along with multiple LTC 8714 Series expanders to provide up to 64 keyboards in a system. The actual number of units that can be used in a system depends upon the model of the Allegiant system.

Allegiant System Capacities

Allegiant Model No.	Maximum No. of Keyboards	Maximum No. of LTC 8714	Maximum No. of LTC 8715
LTC 8600	16	1	0
LTC 8800	32	3	1
LTC 8900	64	7	3

The above table assumes eight system keyboards are connected directly into the Allegiant CPU bay keyboard ports. An LTC 8557 Series keyboard hookup kit is required for each expanded keyboard. LTC 8714 and LTC 8715 port expanders can only be used on LTC 8600, LTC 8800, and LTC 8900 systems containing CPU software version 6.2 or later.

Electrical

Model No.	Rated Voltage	Voltage Range	Power
LTC 8714/60	120 VAC, 50/60 Hz	108 to 132	10 W
LTC 8715/60	120 VAC, 50/60 Hz	108 to 132	10 W
LTC 8714/50	230 VAC, 50/60 Hz	198 to 264	10 W
LTC 8715/50	230 VAC, 50/60 Hz	198 to 264	10 W
Indicators	Power and data transmission activity displayed using LEDs		

LTC 8714 Series Connectors

Interface Data Port: One (1), 9-pin Sub D connector provides data interface to COM 2 port of main Allegiant CPU bay or to expansion port of LTC 8715 Series. Two-meter (6-ft) interconnect cable supplied. Keyboard Data Ports: Eight (8), 6-contact non-powered Allegiant series keyboard cable connectors. An LTC 8557 Series keyboard hookup kits are required for each Allegiant LTC 8555 series keyboard to be interfaced to LTC 8714 Series. For the IntuiKey Series keyboards, a separate power pack can be used.

LTC 8715 Series Connectors

Interface Data Ports: Five (5), 9-pin, Sub D connectors provide data interface to COM 2 port of main Allegiant CPU bay and data interface for up to four LTC 8714 Series units. Two-meter (6-ft) interconnect cable for main bay interface supplied.

AC Input: 3-wire power cord with grounded plug; 1.8 m (6 ft) long.

Mechanical

Construction/ Finish	Steel chassis with sheet metal cover and plastic bezel. Charcoal colored case.
Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11 x 1.59 in.)
Weight	1.9 kg (4.3 lb)
Optional Rack Mount Kit	LTC 9101/00 (Holds 1 or 2 units)

LTC 8780 Series Data Converter Units

The LTC 8780 Series are accessory units that convert the Allegiant system's Bi-Phase control code into RS-232, or converts RS-232 back to Bi-Phase code. This provides the capability of transmitting the control code over conventional RS-232 transmission mediums such as phone modems, fiber optics, microwaves, etc. The unit will accept the Bi-Phase control code generated by an Allegiant main CPU bay, a LTC 8568/00 Signal Distribution unit, or an output from a LTC 8569, LTC 8570 Series or LTC 8571, LTC 8572 Series Code Merger unit.

The LTC 8780 Series are also designed to perform the Satellite selector functions in an Allegiant Satellite system configuration. In addition, using its integral signal distribution capability, the LTC 8780 Series can function as a remote distribution unit providing 15 separate outputs. As a distribution unit, wiring can be in either a "star" or "daisy chain" configuration and each output is capable of driving 8 receiver/driver loads at up to 1.5 km (5000 ft) away using 1 mm² (18 AWG) shielded-twisted pair (Belden 8760 or equivalent).

Refer to separate datasheet for complete specifications.

LTC 8782 Series Code Translator Units

The LTC 8782 Series Code Translators are accessory units that convert Bi-Phase code to other manufactures' control codes, or convert other manufactures' codes to Bi-Phase. Many of the most popular protocol codes are supported, including Pelco, Vicon, American Dynamics, Sensormatic, Kalatel, Diamond Electronics, and Javelin. Fixed and variable speed codes are supported where applicable.

The LTC 8782 Series Code Translators have four independent outputs. Removable screw terminal blocks are used for input and output connections. The Front panel LEDs indicate the status of power, data receive, and data transmit. The translator comes supplied in an EIA 48 cm (19 in.) rack-mount adapter that can hold up to three units.

Refer to the LTC 8782 series data sheet for complete specifications.

LTC 8785 Series Code Converters

LTC 8785 Series units are designed for use in very old Allegiant systems that have been upgraded to support 'variable speed' control code protocol. The LTC 8785 units are used to provide a source of 'fixed speed' control code when the system is generating the new 'variable speed' control code preferred by the AutoDome series of PTZ cameras. The LTC 8785 receives variable speed control code from the Allegiant via its LTC 8568/00 Signal Distribution unit and converts it into appropriate fixed speed control code. The 'fixed speed' control code outputs from the LTC 8785 Series connect to the older TC8561 Series receiver/drivers using the existing field cabling.

Electrical

Model No.	Rated Voltage	Voltage Range	Power
LTC 8785/60	120 VAC, 50/60 Hz	108 to 132	12 W
LTC 8785/50	230 VAC, 50/60 Hz	198 to 265	12 W

Indicators

• Power	LED
• Code	LED

Connectors

Inputs	One (1), 9-pin Sub D connector
Outputs	Sixteen (16), 6-contact removable screw terminal blocks for code output. Maximum transmission distance is 1.5 km (5000 ft) using 1 mm ² (18 AWG) shielded twisted pair (Belden 8760 or equivalent).
AC Input	3-wire power cord with grounded plug; 1.8 m (6 ft) long

Mechanical

Construction/Finish	Charcoal colored metal enclosure
Dimensions (W x D x H)	445 x 318 x 89 mm (17.5 x 12.5 x 3.5 in.) Integral mounting flanges for EIA 22.86 cm (9 in.) rack
Weight	5.3 kg (11.7 lb)

LTC 8786 Data Converter Series

The LTC 8786 Series of data converters are designed to convert Bosch "Receiver/Driver and AutoDome RS-232 Control Code Protocol" into Allegiant Bi-Phase control code. These units are the preferred method for transforming a single RS-232 data output from a DVR (or a similar device) into multiple control code outputs for operating AutoDome cameras. Either "star" or "daisy chain" wiring configurations can be used from each of its 16 outputs. Using daisy chain, each output is capable of driving 8 receiver/driver loads at up to 1.5 km (5000 ft.) away using 1 mm² (18 AWG) shielded-twisted pair (Belden 8760 or equivalent).

Refer to the LTC 8786 series datasheet for complete specifications.

LTC 8016/90 Bilinx™ Data Interface Unit

The LTC 8016/90 Allegiant Bilinx Data Interface unit is an accessory used for communicating over-the-coax, with up to 16 Bilinx-capable AutoDome® and/or Dinion™ Series cameras. Compatible with all seven Allegiant Series matrix switcher/controllers, the LTC 8016 provides complete control of pan/tilt/zoom, auxiliaries, and pre-position functions of Bilinx enabled AutoDome Series cameras. In addition, complete programming of Dinion Series cameras and AutoDomes via their on-screen menus is supported.

Bilinx technology also supports camera-generated event reporting to the Allegiant. This allows remote alarm inputs and motion event data to be sent by the camera to the Allegiant without the need for additional wiring between the camera site and the main control location.

In addition, the LTC 8016 is designed so that other Bi-Phase code generating products, like Bosch Digital Videos Recorders, can be used with the unit for control of PTZ functions and camera menu access over the video cable.

The LTC 8016 is supplied in an enclosure compatible with mounting in an EIA 48 cm (19 in.) rack, requiring only a 1-U rack height. To support large systems, up to 31 units can be cascaded, comprising up to 496 Bilinx-compatible cameras.

The LTC 8016 can also be used to transmit Bilinx communications over a number of video transmission systems. Example devices include fiber optic links and external balun devices that use CAT5 twisted pair cables for video communication.

Refer to the LTC 8016/90 datasheet for complete specifications.

LTC 8808/00 Video Interconnect Panel

The LTC 8808/00 Video Interconnect panel provides the LTC 8200, LTC 8300 Series, LTC 8600 Series, and LTC 8800 Series systems the ability of looping up to 32 video inputs per panel. This 'patch' panel contains 32 BNC connectors on its front panel for external video connections and two 16-contact ribbon connectors on its rear panel. Two, 2-meter (6-ft) 16-conductor video grade ribbon cables are included for interfacing the patch panel to the video looping connectors on the rear panel of the LTC 8200, LTC 8300 Series, LTC 8600 Series, and LTC 8800 Series equipment bays.

Mechanical

Construction/Finish	Charcoal painted metal
Size	One standard EIA 48 cm (19 in.) rack unit high and one unit wide. Integral mounting flange design.
Weight	0.8 kg (1.8 lb)

LTC 8807/00 Video Interconnect Panel

The LTC 8807/00 Video Interconnect Panel is identical to the LTC 8808/00 described above, except that it does not include the two video ribbon cables. This video interconnect panel is intended for use with products that are supplied with video ribbon cables, such as the LTC 8016/90 Bilinx Data Interface unit.

For example, the ribbon cables from up to two LTC 8016 units can be converted into 32 standard female BNC connectors using this interface panel. This configuration is necessary when the LTC 8016 unit will be separated from the control unit beyond a 2 m (6 ft) distance.

LTC 8809 Series Video Ribbon Cables

The LTC 8809 series are 16-channel video ribbon cables that are used to provide connections between certain devices. Specifically designed for the transport of 75 Ohm video signals, these cables are available in three different lengths:

Model Number	Length
LTC 8809/00	2 m (6 ft)
LTC 8809/01	1 m (3 ft)
LTC 8809/02	3.2 m (10.5 ft)

Each cable contains a 34-pin connector at each end that is designed to 'lock' into the corresponding connector found on the rear panels of the Allegiant LTC 8800 and LTC 8900 series matrix switchers. In addition, these cables are supplied with certain other products, including the LTC 8808/00 Video Interconnect Panel and the LTC 8016/90 Bilinx Data Interface unit.

LTC 8506/00 Allegiant Console Cable

The LTC 8506/00 is an RS-232 grade cable with 9-pin, Sub D-connectors on each end that is used to connect an Allegiant's system's Console port to a standard PC Com port. This cable is included in the Allegiant LTC 8059 Master Control Software and the LTC 8850 Allegiant GUI packages.

Length: 3 m (10 ft), approximately.

LTC 8508/01 Ribbon-to-BNC Interface Cable

The LTC 8508/01 is a video interface cable with a 34-pin ribbon cable on one end and 16 male BNC connectors on the other end. This cable can be used to loop up to 16-channels of video signals from products having the ribbon cable connector interface to other devices that utilize BNC connectors. Typical products with 34-pin ribbon cable connector interfaces include the LTC 8016/90 Bilinx Data Interface unit and the DESA^{XL} series digital video recorder.

Length: 1 m (3 ft), approximately

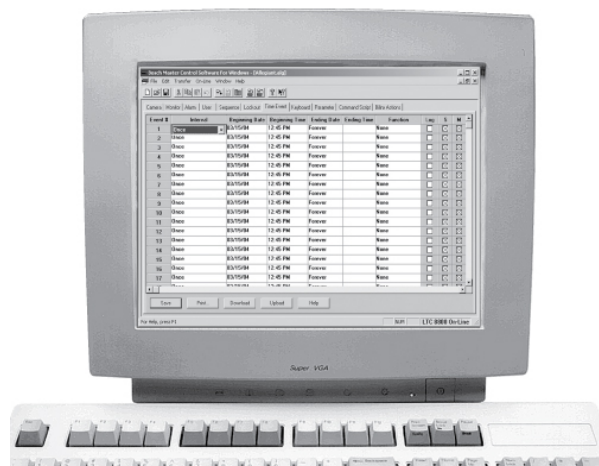
Ordering Information

LTC 8555/00 Compact Full-function Keyboard variable speed joystick	LTC 8555/00
LTC 8555/01 Compact Full-function Keyboard variable speed joystick, icon graphics	LTC 8555/01
LTC 8555/02 Compact Full-function Keyboard variable speed joystick, RS-232 protocol	LTC 8555/02
LTC 8555/03 Compact Full-function Keyboard variable speed joystick, RS-232 protocol, icon graphics	LTC 8555/03
LTC 8540/00 Alarm Interface Unit Alarm interface, 64 alarm inputs, 8 relay closures	LTC 8540/00
LTC 8558/00 Keyboard Cable optional, 30.5 m (100 ft)	LTC 8558/00
LTC 8568/00 Signal Distribution Unit 32 separate biphase outputs	LTC 8568/00
LTC 8768/00 Signal Distribution Unit 64 separate biphase outputs	LTC 8768/00
LTC 8569/50 Code Merger Unit allows 2 Biphase devices to control 32 outputs, 230 VAC, 50 Hz	LTC 8569/50
LTC 8569/60 Code Merger Unit allows 2 Biphase devices to control 32 outputs, 120 VAC, 50/60 Hz	LTC 8569/60
LTC 8570/50 Code Merger Unit allows 4 Biphase devices to control 32 outputs, 230 VAC, 50 Hz	LTC 8570/50
LTC 8570/60 Code Merger Unit allows 4 Biphase devices to control 32 outputs, 120 VAC, 50/60 Hz	LTC 8570/60
LTC 8571/50 Code Merger Unit allows 2 Biphase devices to control 64 outputs, 230 VAC, 50 Hz	LTC 8571/50
LTC 8572/50 Code Merger Unit allows 4 Biphase devices to control 64 outputs, 230 VAC, 50 Hz	LTC 8572/50
LTC 8572/60 Code Merger Unit allows 4 Biphase devices to control 64 outputs, 120 VAC, 60 Hz	LTC 8572/60
LTC 8712/50 Allegiant Console Port Expander for LTC 8600/LTC 8800 console port expander, RS-232, 230 VAC, 50 Hz	LTC 8712/50
LTC 8712/60 Allegiant Console Port Expander for LTC 8600/LTC 8800 console port expander, RS-232, 115 VAC, 60 Hz	LTC 8712/60
LTC 8713/50 Alarm Port Expander for up to 4 LTC 8540/00 units, half rack, 230 VAC, 50 Hz	LTC 8713/50
LTC 8713/60 Alarm Port Expander for up to 4 LTC 8540/00 units, half rack, 115 VAC, 60 Hz	LTC 8713/60

Ordering Information

LTC 8714/50 Keyboard Port Expander for up to 8 Allegiant keyboards, half rack 230 VAC, 50 Hz	LTC 8714/50
LTC 8714/60 Keyboard Port Expander for up to 8 Allegiant keyboards, half rack, 115 VAC, 60 Hz	LTC 8714/60
LTC 8715/50 Port Expander for multiple LTC 8714/50 units, 230 VAC, 50 Hz	LTC 8715/50
LTC 8715/60 Port Expander for multiple LTC 8714/60 units, half rack, 115 VAC, 60 Hz	LTC 8715/60
LTC 8785/50 Data Converter Unit converts var. speed to fixed speed code, 230 VAC, 50 Hz	LTC 8785/50
LTC 8785/60 Data Converter Unit converts var. speed code to fixed speed code, 120 VAC, 60 Hz	LTC 8785/60
LTC 8808/00 Video Interconnect Panel Video connect panel	LTC 8808/00
LTC 8770/50 Switcher/Follower Unit for Allegiant system, 24 relay contacts, half rack, 230 VAC, 50 Hz	LTC 8770/50
LTC 8770/60 Switcher/Follower Unit for Allegiant system, 24 relay contact, half rack, 120 VAC, 60 Hz	LTC 8770/60
LTC 8506/00 Cable PC-to-console port, for Allegiant Systems	LTC 8506/00
LTC 8809/00 Ribbon Cable 16 conductor for LTC 8200, 8300, 8600, 8800 and 8900 Systems, 1.8 m (6 ft)	LTC 8809/00
LTC 8809/01 Ribbon Cable 16 conductors, for LTC 8200, 8300, 8600, 8800, and 8900 Systems, 0.9 m (3 ft)	LTC 8809/01
LTC 8809/02 Ribbon Cable 16 conductors, for LTC 8200, 8300, 8600, 8800, and 8900 Systems, 3 m (9.9 ft)	LTC 8809/02
LTC 8781/60 Time/Date Converter Unit provides output in GPS format	LTC 8781/60
LTC 8560/50 Single-channel On-site Receiver/Driver 230 VAC pan/tilt voltage, 230 VAC power supply, no auxiliary, 50°Hz	LTC 8560/50
LTC 8560/60 Single-channel On-site Receiver/Driver 120 VAC pan/tilt voltage, 120°VAC power supply, no auxiliary, 50/60 Hz	LTC 8560/60
LTC 8780/50 Data Converter Unit Allegiant biphasic control code to RS-232, 230 VAC, 50 Hz	LTC 8780/50
LTC 8780/60 Data Converter Unit Allegiant Biphasic control code to RS-232, 115 VAC, 60 Hz	LTC 8780/60
LTC 8850/00 GUI Allegiant Single User Software Package Complete with Allegiant and VCR server.	LTC 8850/00

LTC 8059/00 Allegiant Master Control Software

**Features**

- **Compatible with all Allegiant Series Systems**
- **Intuitive spreadsheet table-based design**
- **Real-time system status monitoring**
- **Event logging to file**

The LTC 8059/00 brings the familiarity of the personal computer to those who supervise closed circuit television systems. Running on a Microsoft® Windows-based compatible computer, this software is the human interface that makes it quick and easy to configure an entire Allegiant system using a standard RS-232 serial interface.

With the Master Control Software (MCS), users can:

- Enter 16 character camera titles
- Enable an option to enter 40-character camera titles ("3-line titles")
- Program advanced camera sequences
- Configure sophisticated alarm response modes
- Set and change an Allegiant's system parameters
- Lock cameras, monitors, remote control devices, and keyboards from certain users
- Select 6-digit camera ID operating mode (2-digit "site" plus 4-digit camera numbers)
- Configure system for Allegiant Satellite operation
- Perform many other system setup and control features

Users can also view system activity with real time monitoring of the system status, and log these events to file.

The MCS is compatible with all current versions of the Allegiant Series Video Switcher/Control systems. Typically, the MCS communicates with the Allegiant system through a direct RS-232 interface, but it is also possible to install the MCS on a remote PC connected across a Windows based network.

Earlier versions of Allegiant systems may be upgraded to be compatible with the MCS by the installation of current hardware or software upgrades. Contact your Bosch Security Systems, Inc. Sales Representative or Technical Support Representative for details.

Technical Specifications

Minimum System Requirements - PC Platform

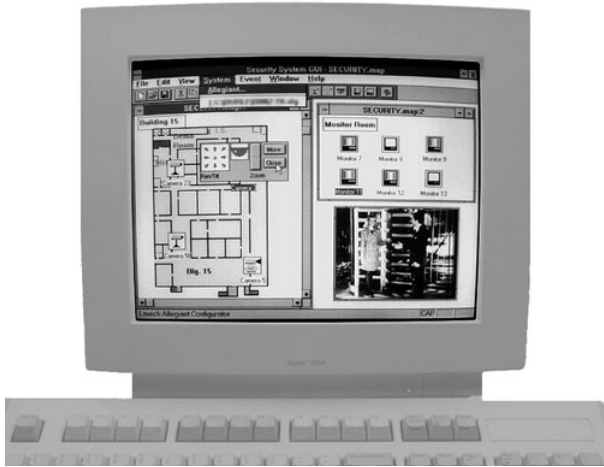
Operating Systems	Windows NT (Service Pack 6a), Windows 2000 (Service Pack 4), or Windows XP Professional
Hardware	Microsoft Windows compatible PC Intel® Pentium® 233 MHz CPU (or greater) 32 MB RAM (with Windows NT or 2000) 128 MB RAM (with Windows XP) 250 MB fixed drive CD-ROM drive
Ports Required (Minimum)	One (1) USB port (for software security dongle device), One (1) serial port for system communication Additional serial ports required if multiple systems are interfaced.
Display	SVGA (or compatible) display
Pointing Device	Mouse or trackball

Ordering Information

**LTC 8059/00 Allegiant Master Control
Software**

LTC 8059/00

LTC 8850 Series Allegiant Software Packages



Features

- ▶ **Interfaces with all Allegiant Series Systems**
- ▶ **Integration of all software modules within a single program**
- ▶ **Alarm event logging and reporting**
- ▶ **Direct import of map files created using popular drawing packages**
- ▶ **Controls multiple compatible VCRs**
- ▶ **Supports live on-screen In-Window PTZ video displays**
- ▶ **Supports multiple GUI workstations via a PC network**

The LTC 8850 Series are software packages utilizing a Graphical User Interface (GUI) to integrate and control security systems. It incorporates Microsoft® OLE (Object Linking and Embedding) technology to harness the full 32-bit power of the Windows Operating Systems. The GUI interfaces directly to the Allegiant Series of video switcher/control systems and provides complete control and programming of all system features. Multiple GUI workstations can also control Allegiant systems via an existing PC network.

The GUI software program integrates many separate software modules to provide a single user interface for configuring, programming, and operating a security system. There is never a need to exit the system to access external security-related software modules. Site maps or other drawings are easily loaded directly into the GUI where they can be seeded with special link icons. These link icons are used to transverse from map to map. Installers can then drag and drop device icons from dockable toolbars, onto the maps. With a mouse click, icon configuration menus are then presented, allowing

quick association of the icon with a hardware device. The capability to select the icon's color and configuration options using an extensive icon library is provided in these menus. The installer may also drag and drop configured devices directly from tables provided in the Allegiant software module.

A special function icon is available, which enables custom user-defined actions to be easily activated by the click of a mouse button. The LTC 8850 Series software packages include a VCR interface program. This VCR server can be used to program and operate legacy VCRs directly from a graphical interface using simple mouse clicks. The VCR server supports VCRs equipped with an RS-232 interface. It is also possible to enter custom command strings to control other RS-232-equipped VCR or DVR models. The Allegiant Product Server software module provides a fully integrated, user-friendly spreadsheet-like interface for entering the Allegiant system's camera titles, sequences, alarm responses, and many other configuration features.

Taking full advantage of OLE software technology, the configuration tables within the Allegiant Server module have been internally linked to the map system. The titles of the camera icons on the maps are automatically changed when corresponding entries are made into the camera table of the Allegiant Server. Correspondingly, the table entry for a particular device icon on a map can automatically be called into view with a simple mouse click on the icon.

Anything that can be accomplished via the Allegiant keyboard can easily be executed through the GUI. Appropriate pop-up control panels are displayed with a simple mouse click on the graphical icons representing cameras and monitors. All functions, including those of the AutoDome® system, with programmable configuration capabilities and variable speed pan/tilt/zoom, are fully operational via the graphical control panels.

The GUI communicates with the Allegiant system using an optimized interface protocol, which provides high performance real time control and monitoring of all Allegiant system functions. This permits the on-screen icons to reflect the real time status of the devices controlled by the system.

The GUI contains a powerful centralized event handler module that is capable of processing events from multiple systems. When an alarm condition occurs, the event handler activates the GUI's response using a pop-up window containing a hot button icon for each event. The hot buttons provide the ability to identify and control the system's response to the alarm condition or other event.

The LTC 8850 Series includes many other features. A password-controlled log-in is used to determine the set of features presented to the user. The user sees only those controls that are available at his level. Drawing files from many popular drawing packages including DXF, HPGL, BMP, etc., can be directly loaded into the GUI.

The system also supports live in-window control of pan/tilt/zoom functions when combined with the video digitizer card listed below; see Note under PC Platform. This InWinPTZ feature allows P/T equipped cameras to be controlled by dragging the mouse pointer in the direction of the desired movement within the on-screen video window. When controlling the variable speed AutoDome Series of cameras, moving the mouse pointer further away from the center of the window will cause the camera to move faster.

Technical Specifications

Software Models Available

LTC 8850/00	Single user package
LTC 8851/00	Five (5) station, multi-user package
LTC 8852/00	Ten (10) station, multi-user package
Format	Software supplied on CD-ROM, disk software security provided via the USB port key

Minimum System Requirements - PC Platform

Operating Systems	Windows® 98, Windows ME, Windows NT (Service Pack 6a or greater), Windows 2000 (Service Pack 4 or greater), or Windows XP Professional
Hardware	Intel® Pentium® 300 MHz CPU (or greater) 16 MB RAM (with Windows 98 or ME) 32 MB RAM (with Windows NT or 2000) 256 MB RAM (with Windows XP) 250 MB fixed drive CD-ROM drive
Ports Required (Minimum)	One (1) USB port (for software security dongle device), One (1) serial port for system communication (Note: additional serial ports are required if multiple systems are interfaced; and an additional serial port is required for each VCR/DVR to be controlled)
Display	SVGA (or compatible) display
Pointing Device	Mouse, trackball, or touch screen

Note: For LTC 8850 network configurations, Windows NT, 2000, or XP is required on all workstations. Windows Server is required on the PC attached to the Allegiant if the number of workstations exceeds 10.

Note: For a live video display on the PC monitor, a Windows-compatible Video Digitizer Card must be used. The FlashBus MV Lite supplied by Integral Technologies, Inc. may be used. For availability, and for your nearest distributor, contact Integral Technologies, Inc. at ++1-317-845-9242 or www.integraltech.com.

Note: Because of resource limitations imposed by Windows 95, 98, or ME complex site installations (those having approximately 10 site maps or more) should be configured only on PCs running Windows NT 4.0, 2000, or XP. Additional RAM memory beyond that specified above is also strongly recommended.

Compatible Systems

The LTC 8850 Series Graphical User Interface (GUI) is compatible with all current versions of the Allegiant Series Video Switcher/Control systems. Product Server device drivers for the Allegiant Series switchers, and for compatible VCRs, are included with the basic GUI package.

Earlier versions of these systems may be upgraded to be compatible by the installation of current hardware or software upgrades. Contact your Bosch Security Systems, Inc. Sales Representative or Technical Support for details.

System Features

Complete Multilevel Map Displays

The system will directly import graphics files from most drawing packages. Supported file formats include DXF (up to DXF revision 12), HPGL, BMP, and many other popular graphical file formats. This feature permits the installer to directly use pre-existing site maps and building drawings, without the need to recreate new drawings and building plans. Site maps may easily be linked, to allow the user to move seamlessly from top level site drawings to individual low level locations, and back again.

Video Switching and Control

The software may be configured to operate with any current Allegiant Series Video Switching and Control system. This includes stand-alone systems as well as Linked or Remote systems interconnected in the SatelliteSwitch® mode. All video switching and control functions are performed via simple on-screen mouse operations.

Operates Using Existing PC Network

Multiple PCs linked together via a computer network can be used to control an Allegiant system. In a typical application, a single PC or computer server is connected to the Allegiant system using a standard RS-232 serial connection. Through this PC, other computer workstations can communicate via the network to control various Allegiant functions, including switching, PTZ operation, and programming. Each workstation requires Windows NT, Windows 2000, or Windows XP, and a registered copy of the LTC 8850 software package.

Alarm Handling

Powerful alarm handling software permits on-screen call up of site maps, as well as the display of live inset Alarm Video. Customized guard instructions may be programmed to display on-screen instructions, which may be keyed to individual alarms.

Data Logging and Reporting

A record of all major system events may be stored on disk for subsequent recall and review.

Icon Library

A complete Icon Library is available to the installer to seed graphical representations of system functions directly on the map displays.

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Pentium is a registered trademark of the Intel Corporation.

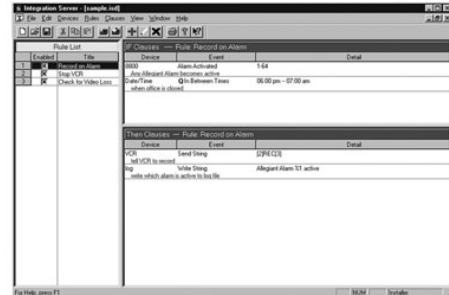
Ordering Information

LTC 8850/00 GUI Allegiant Single User Software Package **LTC 8850/00**
Complete with Allegiant and VCR server.

LTC 8851/00 GUI Allegiant Multi User Software Package **LTC 8851/00**
5 stations, complete with Allegiant and VCR server

LTC 8852/00 GUI Allegiant Multi User Software Package **LTC 8852/00**
10 stations, complete with Allegiant and VCR server,

SFT-INTSRV Integration Server Software

**Features**

- ▶ **Allows communication between normally incompatible systems**
- ▶ **Various communication methods, including RS-232, digital I/O, and directly to Allegiant Server software**
- ▶ **Interfaces with all Allegiant Series Systems**
- ▶ **Can log any or all events onto a PC hard drive**
- ▶ **Integrated COM Port data viewer**

The Integration Server is a software package used to integrate multiple systems that are not ordinarily compatible. These systems can include Video Switchers, Point of Sale systems, Fire/Burglar alarms, Access Control, or HVAC systems.

Devices to be controlled can communicate 3 ways:

1. RS-232. Up to 16 COM ports are supported. The command codes for each device must be supplied by the manufacturer or known to the installer, and are programmed into the Integration Server. The Integration Server listens to the COM port for the specific strings of data programmed by the installer. The server can also transmit preprogrammed strings of data onto the COM port to control devices.
2. Digital I/O. A digital I/O card (National Instruments™ # PC-DIO-24) can be installed in the PC. This card can either control relays wired to external devices, or can monitor relays controlled by external devices.
3. Directly to an Allegiant Switcher via the Master Control Software (LTC 8059) or the Allegiant GUI package (LTC 8850). If the PC is running either of these in conjunction with the Integration Server, communication to the Allegiant switcher can take place without additional external wiring.

The server is programmed to recognize events as they occur on each system, based on one of the methods above, and then react to those events by sending commands to another system. Programming takes place in the form of Rules. Rules are easy to understand clauses, written by the installer, and stored in the program. Rules can be as simple as a single reaction to a single event. They can also be more complex, to include multiple reactions to multiple events under multiple conditions, such as time of day or a range of dates.

The Integration Server is designed with advanced features to simplify operation and configuration. An integrated COM port data viewer can be used to monitor the communication traffic coming in and going out of the PC's COM ports. This tool not only simplifies the design stage of an initial configuration, it also functions as a powerful diagnostic aid. In addition, the software supports the ability to automatically run a pre-selected configuration file upon boot-up of the PC. This feature eliminates the need for manual restarts in the event of a PC power interruption.

Technical Specifications

Recommended PC Platform

Minimum System Requirements

PC Platform with Mouse and Keyboard

- Pentium® 800 MHz CPU and SVGA monitor
- 128 MB RAM (with Windows® NT, Windows 2000®, or Windows® XP)
- 512 MB RAM (with Windows® Vista)
- 250 MB fixed drive space
- CD-ROM drive
- USB port

Operating System

- Windows NT (with service pack 6a or greater)
- Windows 2000 (service pack 4 or later)
- Windows XP Professional (service pack 2 or later)
- Windows Vista Business v6.00

PC Ports Required (Minimum)

- One (1) USB
- One (1) Serial

(Additional serial ports required if multiple systems are being controlled—up to 16 supported)

Slot Type for Optional Data I/O card

- ISA

Components

Format	Software supplied on CD-ROM. Software security provided via USB port security key.
Part Number	SFT-INTSRV
	Includes CD, user manual, USB Security Dongle, and Software License Agreement

Note: Although the SFT-INTSRV software package includes several components, only the above items are applicable to the Integration Server Software.

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Pentium® is a registered trademark of Intel Corporation.

National Instruments™ is a trademark of National Instruments Corporation.

For more information, contact:

National Instruments Corporation:

11500 N. Mopac Expwy

Austin, TX 78759-3504

(512) 338-9119

www.ni.com

Ordering Information

SFT-INTSRV Integration Server Software

SFT-INTSRV

SFT-VASA Hybrid IP - Analog Matrix/Video over IP Integration Software



Features

- ▶ **Hybrid analog Allegiant/IP network CCTV integration software**
 - ▶ **IntuiKey used for switching and PTZ control via IP**
 - ▶ **Analog monitors for viewing remote system via IP**
 - ▶ **PTZ, auxiliary and preposition control**
 - ▶ **Supports 1,024 encoders and 32 decoders**
 - ▶ **Supports Allegiant LTC 8100-8900 matrix switchers**
-

The Virtual Allegiant Satellite Application (VASA) is Bosch's strategic product that allows existing Allegiant customers to transition gradually to pure IP technologies rather than a total and instantaneous replacement.

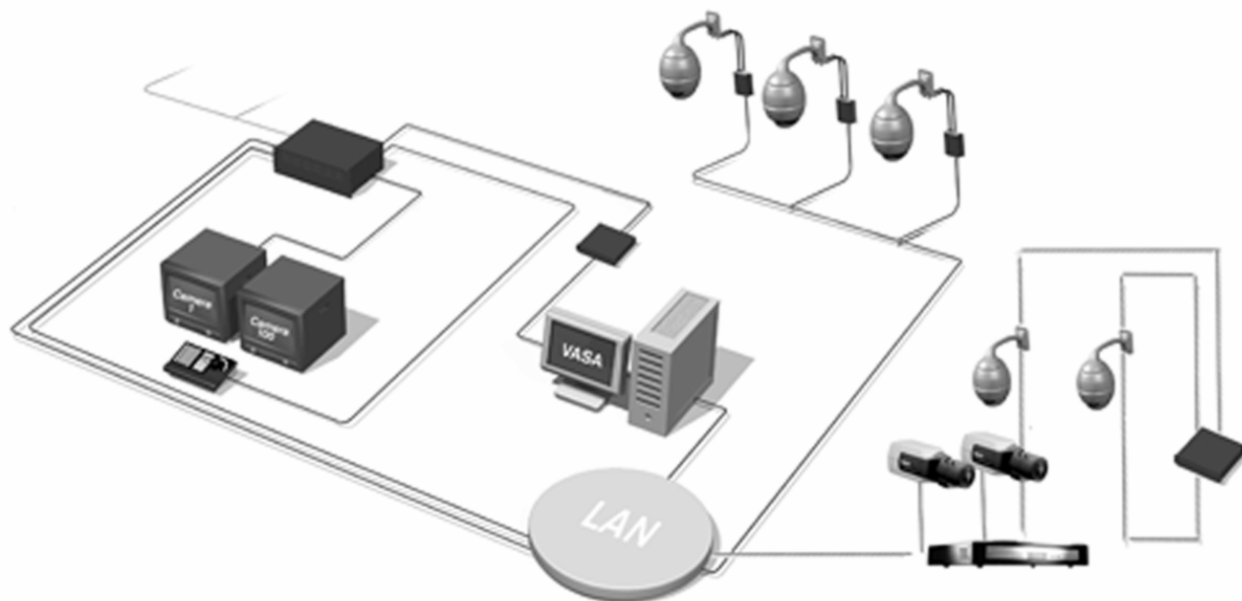
VASA reflects the reality that thousands of Allegiant users are satisfied and very comfortable with their existing analog-based matrix switcher and associated CCTV keyboards and monitors. Security strategists also recognize that when the time comes for camera expansion, that IP network-based technologies offer unique benefits, such as simplified cabling: A single CAT-5 cable can carry hundreds of video, audio, pan/tilt/zoom (PTZ) control, serial ports, alarm inputs and relay outputs lines.

VASA acts as the integration bridge between an existing Allegiant and the new digital-based CCTV system (the 'satellite') that uses digital video encoders and decoders. With VASA, the new IP technology is totally transparent to the existing Allegiant users who continue to use their IntuiKey CCTV keyboards for switching and PTZ control of video on classic analog monitors. Finally, VASA replaces costly dedicated analog video lines and in addition to remote PTZ functionality, it also supports encoder relay activations.

VASA supports the Allegiant LTC 8100 through LTC 8900 Series matrix switchers. In addition to PTZ control, VASA provides auxiliary and preposition control of the IP based cameras. Because VASA fully integrates the Allegiant with Bosch video IP products, even remote camera titles appear on the local Allegiant analog monitors.

VASA improves the Return on Investment (ROI) on existing capital assets, removes the need for training, and reduces the risk for adopting new technology by incrementally adding to the system. The integration is seamless and the transition is designed to be imperceptible.

Installation/Configuration Notes



Virtual Allegiant Satellite Application System

Technical Specifications

System

Format	Software supplied on CD-ROM, software security provided via USB port security key
Part Number	SFT-INTSRV
	Includes CD, User Manual, USB Security Dongle, RS-232 cable (Bosch Security Systems Part #S1385), and Software License Agreement

Recommended System Requirements

PC Platform	Microsoft Windows® compatible
	Intel® Pentium® 2.8 GHz or greater
	512 MB RAM
	50 MB fixed drive space
	CD-ROM drive
PC Ports	10/100 Base-T Ethernet interface
	One (1) USB port (or USB hub port) for USB security dongle
	One (1) serial port for LTC 8780 communications, additional serial ports required if multiple LTC 8780 units are connected
Operating System	Windows 7® (32 or 64 bit), Vista® Business SP2, XP® SP3, or Windows Server 2003®
Display	SVGA or compatible
Data Converter	LTC 8780 Series data converter unit

Compatibility

Allegiant Matrix Switchers

The VASA software is compatible with any Allegiant Series system that supports Satellite configurations. Minimum Allegiant CPU firmware required to support Satellite configurations is version 4.0 or later (i.e., units manufactured after 1991).

Bosch Digital Encoders

VideoJet 10S	VIP X1600
VIP 10S	Dinion IP (LTC 0455 and LTC 0495)
VIP X1, X1A, X1P, and X1AP	AutoDome IP (VG4 Series)
VIP x2 and X2A	FlexiDome IP
VideoJet 8000/XPro V8	VideoJet X10
VideoJet 8004/XPro V8-X4	VideoJet X20
VideoJet 8008/xPro V8-X8	VideoJet X40
VIP 1000S	Extreme Series IP 200
NBC 255P IP	

Bosch Digital Decoders

VideoJet 10 E	VIP 1000 E
VIP 10 E	VIP XD, XDA
VIP X1600 XF	

Ordering Information

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
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LTC 8943/93SSD



Features

- ▶ **8GB Flash Memory**
- ▶ **100% Solid State hard drive**
- ▶ **No noise, no latency**
- ▶ **Standard 40-pin IDE interface**
- ▶ **Low heat consumption**
- ▶ **User friendly installation**

The LTC 8943/93SSD is a 100% solid state replacement hard drive for Allegiant LTC 8943/93 PCs. The solid state design eliminates wear out failure associated with magnetic hard drives. It is supplied with Windows XP operating system plus the latest Service Packs and all legacy LTC 8059/00 Master Control Software versions. The LTC 8943/93SSD drive is a cost effective alternative to replacing the entire PC when an upgrade to XP is required for security purposes or when the conventional hard drive fails.

Technical Specifications

Electrical

Capacity	8 GB (Flash memory)
Interface/Connector	Standard 40-pin ATA/IDE motherboard connector with lock clips
Supplied Software	XP Operating system; all versions of Allegiant Master Control Software

Mechanical

Dimensions (L x W x H)	0.05 x 0.028 x 0.01 mm (2.3 x 1.1 x 0.4 in.)
Weight	0.0017 kg (0.06 oz) unit only 0.015 kg (0.53 oz) unit plus box contents

Environmental

Temperature

• Operating	0°C to +70°C Commercial -40°C to +85°C Industrial
• Storage	-40°C to +100°C
Humidity	8% to 95% relative, non-condensing
Shock	1,500 G
Vibration	15 g
MTBF	>4 million hours

Compatibility

LTC 8943/93 PCs originally supplied between 2003 to 2008. Not suitable for use in any other model PC.

Ordering Information

LTC 8943/93SSD

Replacement Solid State Hard Drive for LTC 8943/93 PC.

LTC 8943/93SSD

LTC 2605/91 Video Manager



Features

- ▶ **Centralized monitors and multiplexer operation**
- ▶ **Controls up to 16 Divar Digital Video Recorders or System4 Multiplexers**
- ▶ **Uses up to four keyboards with optional port expander**
- ▶ **Auto-sensing setup - no user programming required**

The LTC 2605/91 Video Manager provides advanced switching capability in system configurations that incorporate either Divar Digital Video Recorder devices or System4 Series Multiplexer devices. The unique video management capability of this unit reduces the number of monitors required in the system. This way, a single control station can easily control up to sixteen connected devices.

The Video Manager supports up to six monitor outputs, and using the LTC 2604 Series Keyboard Port Expander, it can accommodate up to four independent keyboards. Each keyboard is able to direct switching of the devices, mode selection, programming, and pan/tilt/zoom functions on the monitors under its control. When using the Video Manager with at least one IntuiKey Series keyboard, automatic alarm switching is supported. Two of

the Video Manager's monitor outputs can be connected to dedicated monitors for automatic display of alarm video from any of the devices during alarm conditions. When alarms are not present, these monitor outputs simply generate a black raster signal.

By design, system setup of the Video Manager is quick and easy - just plug it in and it is ready to operate.

Functions

Operation is simple: As shown in the following figures, the Video Manager accepts the Monitor A and Monitor B outputs from each of the video devices. Using the system keyboard, the system intelligently routes the video outputs from any one of the sixteen devices, to a dedicated pair of monitor outputs.

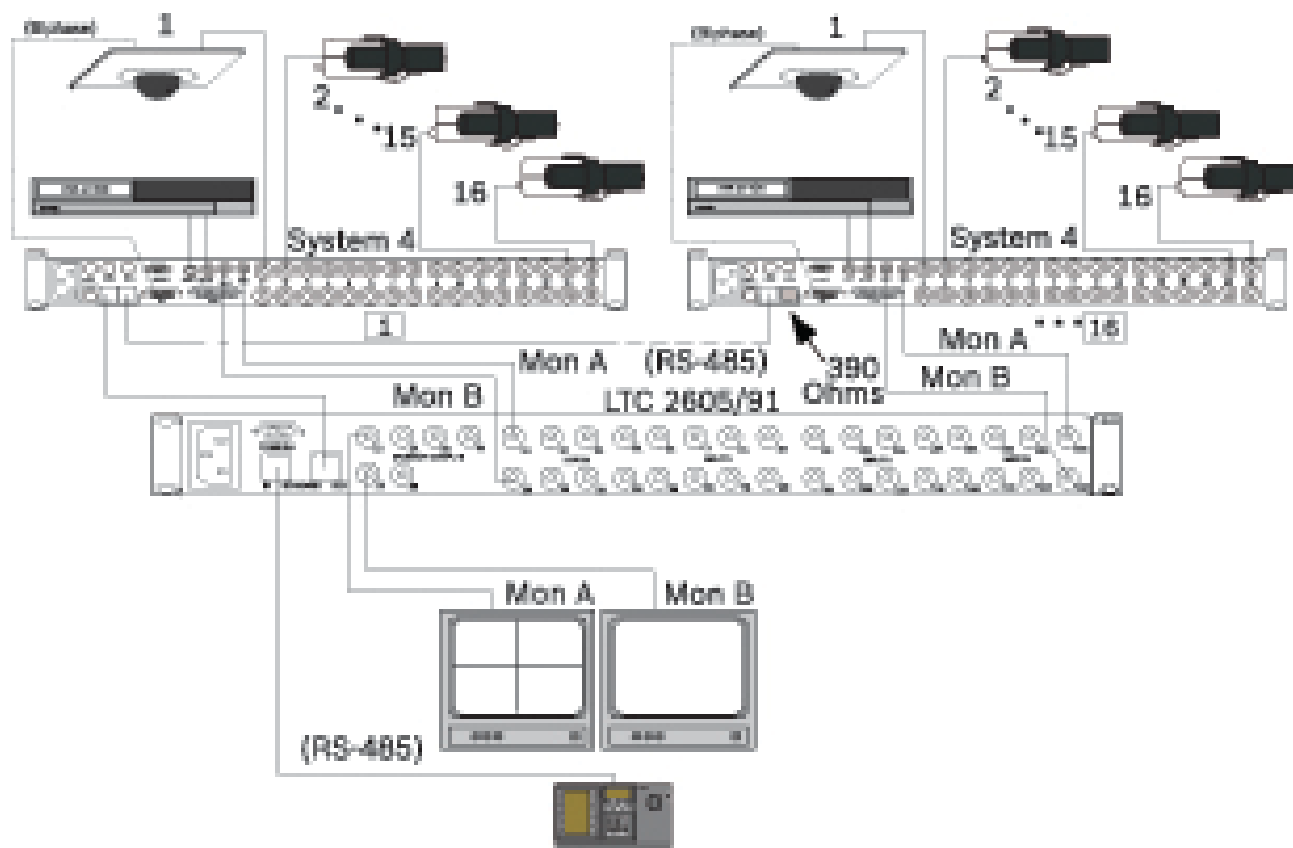
When using two keyboards, the system intelligently routes the video outputs from any of the sixteen devices to two pairs of monitor outputs. Each keyboard has independent control of the video from any of the devices to its associated monitor pair.

Adding a third keyboard to the system allows video to be routed from any of the devices to a third station having a single monitor. Complete control over this monitor is available using the keyboard dedicated to the station. Connection of a fourth keyboard provides similar functionality to a monitor at a fourth monitoring station. As before, complete control over this monitor is available using the keyboard at this location.

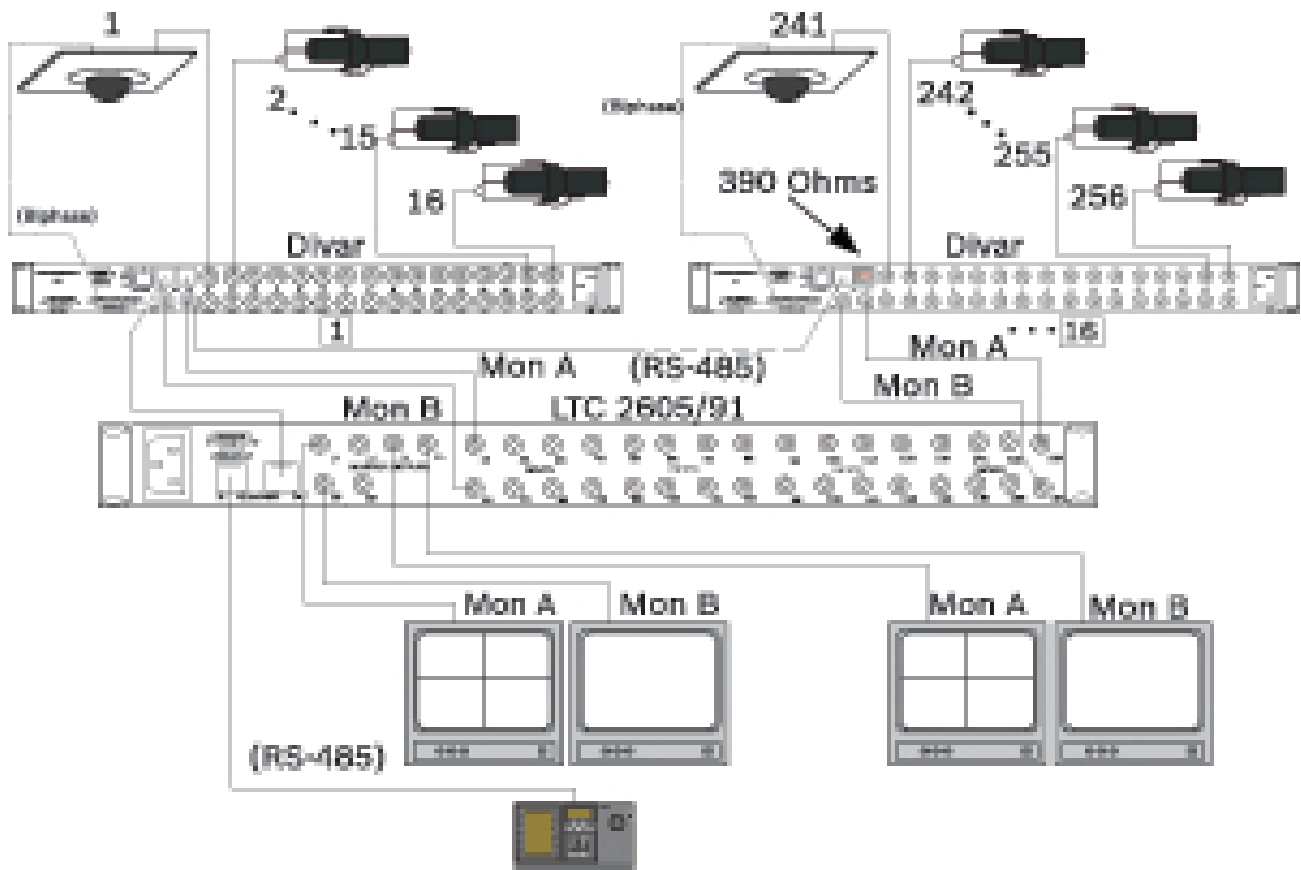
Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

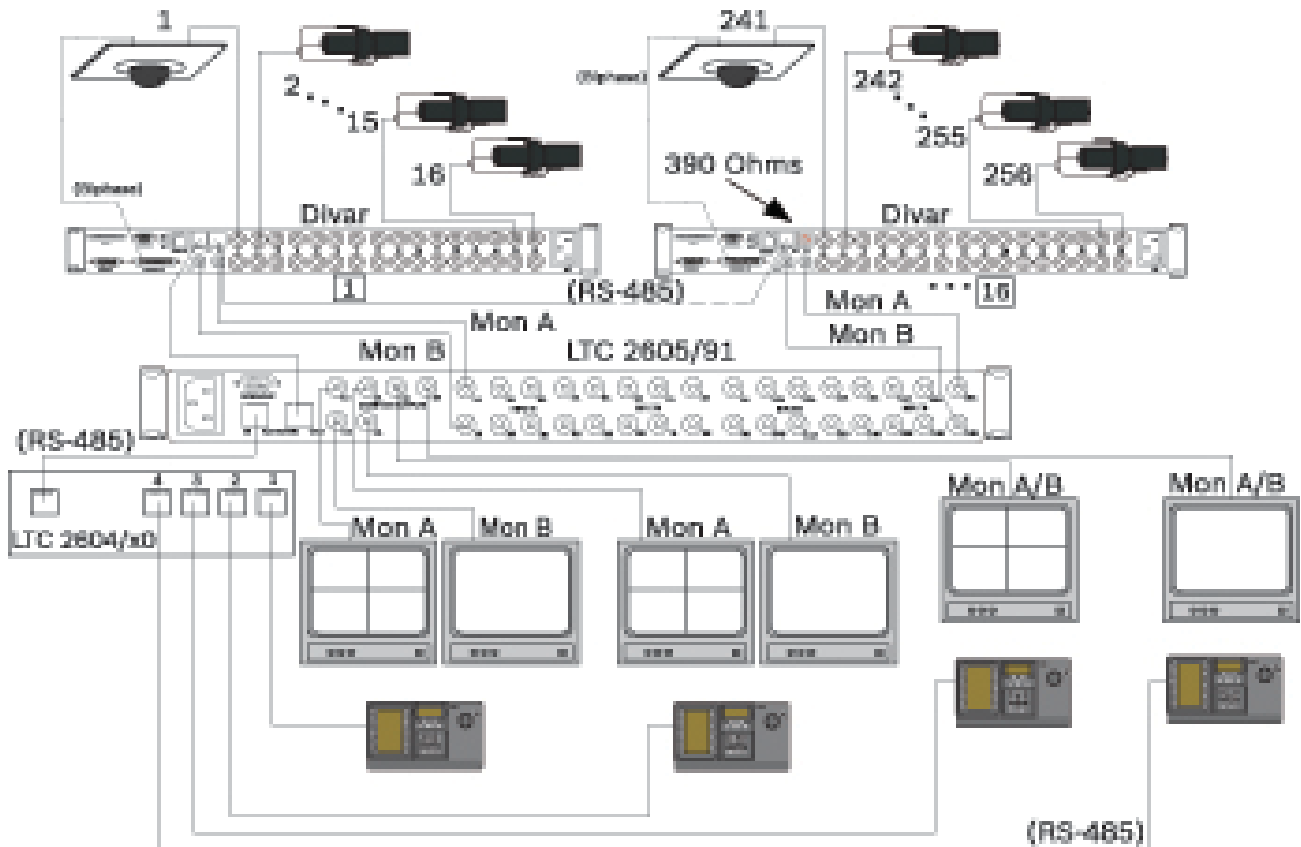
Installation/Configuration Notes



LTC 2605/91 Video Manager with System4 Multiplexers and IntuiKey Keyboard



Video Manager with Divar Digital Video Recorders Including Alarm Monitor Pair



LTC 2605/91 Video Manager with Divar Digital Video Recorders and 4 IntuiKey Keyboard Control Stations

Technical Specifications

Electrical

Model Number	LTC 2605/91
Voltage Range ¹	108 to 253, 50/60 Hz
Power at Rated Voltage	10 W

1. Unit contains a switching power supply.

Synchronization	Accepts PAL, CCIR, NTSC, and EIA RS-170
Connectors	Video inputs and monitor outputs: 32 BNC Monitor connections: 6 BNC

External Accessory Interfaces

Console	Not used
Keyboard	Two (2) RJ-11

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal
Dimensions (W x D x H)	440 x 305 x 44 mm (17.3 x 12 x 1.73 in.)
Weight	4 kg (8.8 lb)

Environmental

Operating Temperature	4°C to 55°C (40°F to 131°F)
Storage Temperature	–40°C to +60°C (–40°F to 140°F)
Humidity	0%–95% relative, non-condensing

Compatibility

Divar digital video recorders	All Series 1 & 2 models
IntuiKey Keyboard	All models, including KBD-Digital, KBD-Mux, KBD-Universal
LTC 2600 Series multiplexers	All "System4" models
LTC 2604 Series multiplexer port expanders	All models

Ordering Information

LTC 2605/91 Video Manager for use with Divar all Series 1 & 2 models and System4 Multiplexer, 120/230 VAC, 50/60 Hz	LTC 2605/91
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Accessories

KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL

IntuiKey Series Keyboards



Features

- ▶ **Control matrix, DVR, and IP video products with one keyboard**
- ▶ **Soft keys allow for product-specific menus**
- ▶ **Backlit keys and easy-to-read displays**
- ▶ **Simplified system programming with an intuitive interface**
- ▶ **Multilingual support**
- ▶ **Plug-and-play with Bosch Switchers, DVRs, Multiplexers, and IP solutions**
- ▶ **Optional PC software supports customizable Allegiant command script programming**

The IntuiKey Series keyboards are full function, multipurpose keyboards used for system control and programming. The IntuiKey includes an integral variable speed pan/tilt/zoom (PTZ) joystick and a splash resistant design. An optional rack mount kit allows the IntuiKey to be mounted in a standard EIA 48 cm (19 in.) rack.

Functions

The IntuiKey Digital Keyboard is available in two models, KBD-Universal and KBD-Digital. The Universal version can be connected to an Allegiant switcher and either Divar Digital Video Recorders or System4 Multiplexers at the same time. This capability eliminates the need for multiple keyboards. The KBD-Digital version supports Divar Digital Video Recorders and System4 Multiplexers. Both types can be used with the Bosch VMS and with the VIDOS video management systems.

The IntuiKey accepts both the standard Allegiant RS-485 Keyboard protocol and the Allegiant RS-232 protocol. The Allegiant RS-232 Keyboard protocol is well suited when communicating to a remote KBD-Universal over an IP network.

The IntuiKey can also operate in a Terminal mode using a special RS-232 protocol. This mode allows third-party integrators and internal developers to use the IntuiKey as a customizable user interface.¹

The main Allegiant switcher, the Divar Digital Video Recorder, or the System4 Multiplexer provides power when used in a local configuration. At remote distances, an optional auxiliary power supply (sold separately) provides power.

The keyboard is connected to a system using a supplied 3 m (10 ft) cable. Simply attach the keyboard and the system is operational. No additional programming is required.

The IntuiKey's soft keys provide a menu-driven system for ease of use. The soft keys make it easy for new operators to program and control even the largest systems without memorizing system commands.

The IntuiKey features a quick selection menu function, providing immediate access to the most commonly used screen displays.

The IntuiKey also features a user-friendly menu tree approach for programming all advanced system and camera settings. Languages available via the IntuiKey unit are English, Spanish, Dutch, French, German, Italian, Polish, Portuguese, Turkish, Hungarian, Swedish, Finnish, and Danish. Additional languages can be downloaded from the IntuiKey section of www.boschsecurity.us. The additional languages are: Norwegian, Greek, Czech, Russian, Slovak, Arabic, Simplified Chinese, Traditional Chinese, Korean, and Japanese.

1. Contact your local Bosch Security System sales representative for details about obtaining Terminal mode protocol information.

Certifications and Approvals

Region	Certification	
Europe	CE	DEKLARACJA ZGODNOŚCI EC KBD-DIGITAL/UNIVERSAL DEKLARACJA ZGODNOŚCI EC KBD-MUX/UNIVERSAL
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations	
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards	

Technical Specifications

Electrical

Operating Voltage

12–15 VAC/DC (supplied by one, or a combination of Allegiant switchers, Divar Digital Video Recorder, System4 Multiplexers, or optional power supply)

Power	5 W nominal
Allegiant Signal	RS-485: 2-wire, 9600 Baud, 8 bits, no parity, 1 stop bit RS-232: 3-wire, 9600 Baud, 8 bits, no parity, 1 stop bit
Mux/DVR Signal	RS-485: 2-wire, 19,200 Baud, 8 bits, no parity, 1 stop bit
Terminal Mode Signal	RS-232: 3 wire, 9600 Baud, 8 bits, no parity, 1 stop bit
Console Signal	RS-232 RTS/CTS handshaking, 19,200/57600 Baud, 8 bits, no parity, 1 stop bit

Mechanical

Construction Finish	Charcoal
Width	327 mm (12.9 in.)
Depth	190 mm (7.5 in.)
Height	75 mm (2.9 in.)
Weight	1.1 kg (2.6 lb)
Allegiant Connector	RJ-11 data/power
Mux/DVR Connector	RJ-11 data/power
Aux Power Connector	Bayonet plug (optional)
Console Connector	Male, 9-pin D-sub

Environmental

Enclosure	Splash-resistant
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Temperature

Operating	0°C to 50°C (32°F to 122°F)
Storage	–20°C to 50°C (–4°F to 122°F)
Relative Humidity	10%–90%, non-condensing

Compatibility

Allegiant	Backwards compatible with all systems using variable speed protocol (CPU firmware 5.3 and higher, released 6/94)
Divar	All models
System4	Backwards compatible with all System4 Multiplexers
BVMS	Version 1.10 or later
VIDOS	Version 3.0 or later

Optional Software

IntuiKey Script Application (ISA)
The IntuiKey Script Application is a PC-based software program used to customize the macro buttons in the Command Script menu screens of the KBD-Universal model keyboard. Command Script macro functions are applicable when the keyboard is connected to an Allegiant series matrix switcher.

Requirements	Pentium-class PC with Windows NT, 2000, XP, Vista (32 or 64 bit), or Windows Server 2003; One (1) serial port; IntuiKey firmware v1.94 or later
Availability	Download software from the IntuiKey section at www.boschsecurity.com

Pentium is a registered trademark of Intel Corporation.

Windows, Windows XP, Windows 2000, Vista and Windows NT® are registered trademarks of Microsoft Corporation.

Allegiant, Divar and System4 are registered by Bosch Security Systems, Inc. in the US Patent Trademark Office.

Ordering Information

KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
Accessories	
KBD-120PS Power Supply Unit 120 VAC/12 VDC, 600 mA, 50/60 Hz power supply and power cable	KBD-120PS
KBD-220PS Power Supply Unit 220-240 VAC/12 VDC, 600 mA, 50/60 Hz power supply and cable	KBD-220PS
LTC 8557/50 Keyboard Extension Kit Hook-up kit for remote keyboard, up to 1.5 km (5000 ft), includes power supply for 230 VAC, 50 Hz	LTC 8557/50
LTC 8557/60 Keyboard Extension Kit Hook-up-kit for remote keyboard, up to 1.5 km (5000 ft), includes power supply for 120 VAC, 60 Hz	LTC 8557/60
LTC 8558/00 Keyboard Cable length 30 m (100 ft)	LTC 8558/00
KBD-RACK Rack mount kit for KBD-Universal and KBD-Digital, 48 cm (19 in.) EIA standard rack unit; W x H: 428 x 220 mm (19 x 8.75 in.); 1 kg (2 lb)	KBD-RACK

System4 Series Video Management System



Features

- ▶ **True Triplex operation**
- ▶ **Simultaneous playback and live view multiscreen display**
- ▶ **Playback six (6) recording formats**
- ▶ **Timed events feature**
- ▶ **Log events feature**
- ▶ **Custom alarm display with multiple presets**
- ▶ **Remote VCR setup**
- ▶ **Master clock synchronization**
- ▶ **Full duplex VCR controls with on-line status and time/date/search functions**

System4 Video Management Systems incorporate advanced circuitry and expanded memory with improved color sampling and processing to produce high quality, true-to-life color video images. Enhanced circuitries allow increased image accuracy and faster display rates without annoying onscreen flickering (aliasing) common with multiscreen displays. These units can be used as matrix switchers, displaying any camera to either monitor A or B and include custom alarm display on monitor A with up to 4 pre-position call-ups in a single alarm contact. Also, with the internal universal power supply, the System4 intelligently detects the video input signal input voltage and automatically sets the unit for PAL/NTSC or EIA/CCIR.

Functions

The advanced features of System4 are accessible through the optional IntuiKey remote keyboard. The IntuiKey keyboard is capable of controlling Bosch AutoDome systems and receiver/drivers for pan/tilt/zoom control. The System4 remote keyboards control all primary functions of any selected Bosch VCR. Up to 30 System4 units and 30 VCRs can be programmed and controlled by one keyboard. With Master Clock Synchronization, the System4 automatically synchronizes all of the clocks. With

a keyboard port expander unit (see OPTIONS), up to four keyboards can be used to program and control a System4 video controller.

The LTC 2682/90 16-channel Triplex multiplexer allows for the following:

- Simultaneous recording and multiscreen viewing on both monitors.
- Simultaneous recording and playback and live viewing multiscreen.
- Can play back the recording formats of 6 different manufacturers.

The system's user-friendly controls allow fast and easy programming and operation. System4 units include an onscreen menu for programming which is available in English, French, German, Spanish, Dutch, or Italian. Programming allows for either AutoSet or customized system configuration via the Advanced Setup program. Help screens provide explanation and instruction, guiding operators step-by-step through the setup process. When the AutoSet feature is enabled, System4 will automatically configure itself for recording, sequencing, and video loss listing based on the number of connected cameras.

All System4 models provide digital motion detection, ensuring that cameras with motion present become the priority for recording. Recording may be programmed as either "exclusive" or "interleave", based on motion or alarm detection. Four levels of sensitivity are available including direction sensing, target size, and a special walk-through setup to eliminate false alarms. A selectable audible buzzer is available in this mode. Parameter setup can be preprogrammed using the Timed Events feature, which allows several configurations for system operation and recording. Up to six separate System4 operational parameters may be programmed and stored in the system memory for manual call-up or time activation.

System4 units include front panel controls, synchronization with VCR head switching, freeze, 4X zoom, video loss indicators, alarm capture, password security, multi-relay outputs, and full function time/date with 16-character titling record capability. All units are compatible with standard VHS and SVHS formats and normal and high density VCRs. No external synchronization of camera inputs is required, as integrated time based correction is included in all models.

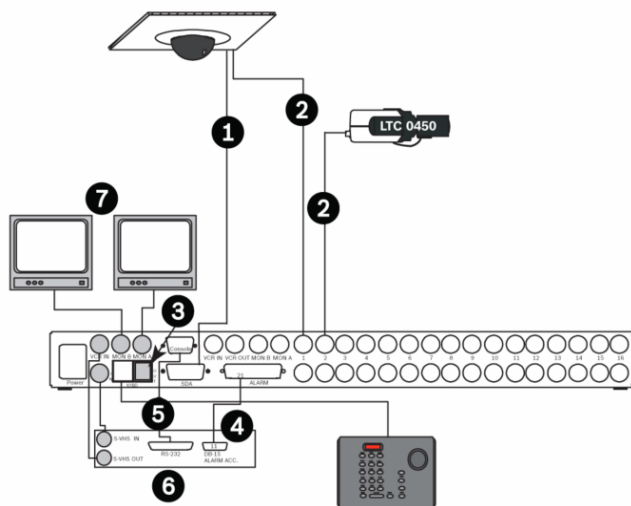
A Log Events feature tracks event history and a console port allows PC control of the system, full duplex VCR control including remote VCR setup and a time/date/search function to reduce tape viewing time, or interaction with Access Control Systems and Bosch LTC 2650/00 Graphical User Interface (GUI) software packages.

Today's growing business demands security that is sophisticated, reliable and easy to use. From discount stores to commercial offices, System4 intelligently provides a multifunction system capable of handling up to 9 or 16 camera inputs with switching and multiplexer control, pan/tilt/zoom, and VCR control in one compact unit.

Certifications and Approvals

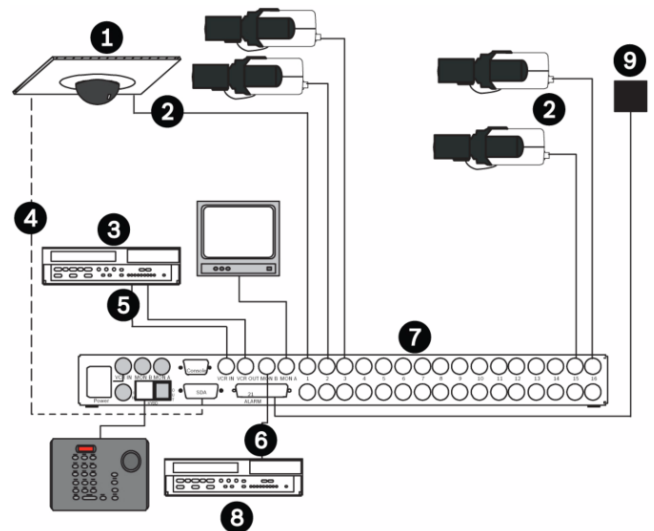
Electromagnetic Compatibility (EMC)	CE Immunity, CE Emission Class A, FCC Class A
Safety	CE, UL, cUL

Installation/Configuration Notes



System4 Triplex, Typical Operation

- 1 Data
- 2 Video
- 3 Terminated Resistor
- 4 VEXT Connection 21 to 11 and 25 to 15 (GND)
- 5 S1383
- 6 S-VHS Type VCR
- 7 S-VHS Video



System4, Typical Configuration

- 1 AutoDome
- 2 Video
- 3 Record/Playback VCR
- 4 Data
- 5 Out
- 6 In
- 7 Up to 16 Cameras
- 8 Recording VCR
- 9 PIR Sensor

Simultaneous Recording to Two VCR's (Triplex Operation)

The LTC 2682 provides two independent VCR outputs; each output can be programmed to encode camera sequences. Using the LTC 2682 in this mode offers the flexibility to distribute the number of cameras between two VCRs to provide a fast update rate for each camera. Two VCRs may also be programmed so that one VCR may be used for normal encoding while the other is used for action/alarm encoding. In this triplex mode of operating, Monitor A always displays the image in multi-screen, quad, full, or multiple cameras in a sequence mode.

Technical Specifications

Electrical

Description	Voltage Range	Power/ Current
16-channel Triplex	108 to 253 VAC, 50/60 Hz	30 W/0.5 A

Synchronization

Full Time-based Correction

Monochrome	625 line, 50 Hz, CCIR
Monochrome	525 line, 60 Hz, EIA RS-170
Color	625 line, 50 Hz, PAL
Color	525 line, 60 Hz, NTSC

Digital Memory

720 H x 576 V

AGC: Automatic or manual adjustment for each video input. Video Input Level: 0.5 Vp-p to 2.0 Vp-p composite video signal.

Operating Modes

Simultaneous record and multi-screen viewing on both monitors. Simultaneous record and playback and multi-screen viewing.

Display Modes**Live**

Monitor A	Full, quad, or multi-screen display
Monitor B	Full (alarm or action call-up only), quad, or multi-screen display

Playback

Monitor A	Full, quad, or multi-screen display
Monitor B	Full

Controls and Indicators - Front panel**Inputs**

Camera	9 (16) inputs; 18 (32) BNC connectors, automatic looping termination BNC
VCR IN	One (1) BNC
VCR IN	One (1) Y/C

Outputs

Monitor A	One (1) BNC
Monitor B	One (1) BNC
VCR OUT	One (1) BNC
Monitor A	One (1) Y/C
Monitor B	One (1) Y/C
VCR OUT	One (1) Y/C

Connectors

Power	IEC socket, 3-wire power cord with grounded plug; 1.8 m (6 ft)
Accessory Inputs/Outputs	One (1), 25-pin D-type connector for alarms and accessories
Alarm Inputs	9 (16) individually selectable NO or NC alarm

Inputs

Relay Output	Three (3) relay outputs (selectable NO or NC), one (1) for action/alarm (VCR # 1), one (1) for action/alarm (VCR # 2) and one (1) for video loss (these relay contacts handle up to 1 A at 40 VAC/VDC)
SDA	15-pin D type for 5 Bi-Phase outputs
Console	9-pin D type for RS-232 controls
VEXT inputs	Two (2)

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal case
Dimensions (W x H x D)	440 x 305 x 40 mm (17.3 x 12 x 1.7 in.)
Weight	5 kg (11 lb)
Rack Mount Kit (Included)	For mounting one unit in an EIA 48 cm (19 in.) rack

Environmental

Operating Temperature	10°C to 55°C (50°F to 131°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	0% to 90% relative, non-condensing

Ordering Information

LTC 2682/90 Video Management System 16 channel multiplexer, color and B&W, triplex, 105–253 VAC, 50/60 Hz	LTC 2682/90
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Accessories

KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
LTC 2601/00 Keyboard for 6plex and System4 with push button PTZ control	LTC 2601/00
LTC 2604/50 Keyboard Port Expander Unit System4, 230 V, 50 Hz	LTC 2604/50
LTC 2604/60 Keyboard Port Expander Unit System4, 120 V, 60 Hz	LTC 2604/60
LTC 2609/00 System4 Extension Kit links up to six (6) System4 Multiplexers, 90 units	LTC 2609/00
LTC 2605/91 System4 Video Manager for use with Divar and System 4 Multiplexers, 105–253 VAC, 50/60 Hz	LTC 2605/91
LTC 8558/00 Keyboard Cable optional, 30.5 m (100 feet)	LTC 8558/00

LTC 2380/90, LTC 2382/90 Digital Video Quad Processor



Features

- ▶ Auto detects Color and B/W cameras and PAL/NTSC signals
- ▶ Real-time display and record update rate
- ▶ Sequencing Full Screen or Quad display
- ▶ Video loss detection
- ▶ RS-232 control
- ▶ Programmable alarm features
- ▶ Two relay outputs

The LTC 238x/90 Digital Video Processors use the latest integrated technology to produce high quality, real time video in both Full and Quad Screen Modes. The video processor auto detects the applicable video standard, PAL or NTSC, and configures itself accordingly. In addition the unit will detect color or B/W cameras and configures itself accordingly.

The display is updated at the field rate of 60 fields per second for EIA/NTSC or 50 fields per second for CCIR/PAL, providing real time video. These video processors require no external synchronization and accept video inputs with 2:1 interlaced source.

System Overview

LTC 2380/90

The LTC 2380/90 Digital Video Processor is designed for easy installation in applications where four cameras need to be viewed on a single monitor. It offers a quad display with no user controls required - truly plug and play.

LTC 2382/90

The LTC 2382/90 is a full-featured Digital Video Processor that includes a monitor output plus a second output (REC Out) for video recording devices. The Monitor output can be set for the following display options:

- Quad display (all four cameras).
- Full Screen display (any camera).
- Sequencing with programmable dwell time.

The LTC 2382/90 allows recording in Quad mode or Full-screen mode of individual cameras. Quad recorded images can be viewed in full screen using the built-in zoom playback.

These units allow user-friendly on-screen programming for quick-and-easy setup, including setting 8-character camera titles.

The LTC 2382/90 allows for remote control and external time/date synchronization via an RS-232 connection. Several units may be daisy chained together so that all can be controlled from one PC.

Other features include a flashing Alarm indicator, programmable audible alarm, a video loss output relay and an alarm output relay for control of a VCR or a DVR. Also available are front panel alarm clear, user programmable alarm dwell time and a video loss indicator.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

Technical Specifications

Input Mains Voltage to External Power Supply (all models)

Voltage	90 to 265 VAC
Frequency	47 to 63 Hz
Nominal Power	10 W

DC Voltage (into unit)

Voltage	5 VDC \pm 5%, 10 W
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Video Format

Resolution

All models auto detect the applicable video standard, PAL or NTSC, and configures itself accordingly.

- PAL 720 x 625
- NTSC 720 x 525

Controls and Indicators**Front Panel–LTC 2382/90**

Power Indicator is illuminated when Power is applied to the unit.

- | | |
|-------------------------|--|
| • PLAY | Button with LED indicator; selects playback video display on monitor |
| • MENU | Button; selects on-screen menu |
| • SEQ/ALM | Button with LED indicator; selects sequencing and alarm clear functions |
| • Camera Select (Arrow) | Four (4) push buttons with LED indicators; selects a video input (camera 1, 2, 3 or 4) for full screen display. Used as menu navigation keys during programming. |
| • QUAD/RETURN | Button with LED indicator; selects quad display on the monitor. Used to enter or set parameters during programming. |

Connectors–LTC 2382/90

- | | |
|------------------|---|
| • Video Input | Four (4) BNC, with auto switched 75 Ω termination ¹ |
| • Video Output | Four (4) BNC, loop through ¹ |
| • Monitor Output | One (1) BNC, 75 Ω output impedance |
| • PLAY IN | One (1) BNC, 75 Ω terminated |
| • REC OUT | One (1) BNC, 75 Ω output impedance |
| • ALM/RS232 | 15-way D-type, breakout terminal block |
| • Power Input | DC power jack |
| • Chassis Earth | Phillips screw |

Connectors–LTC 2380/90

- | | |
|------------------|---|
| • Video Input | Four (4) BNC, with auto switched 75 Ω termination ¹ |
| • Video Output | Four (4) BNC, loop through ¹ |
| • Monitor Output | One (1) BNC, 75 Ω output impedance |
| • Power Output | DC power jack |
| • Chassis Earth | Phillips screw |

1. 75 Ω termination is normally connected to the video input. If a loop through is connected, however, this 75 Ω termination is switched out and termination must be supplied by the downstream equipment

Electrical Ratings–Rear Panels

Video Input Voltage	2 Vp-p max. 0.5 Vp-p min.
Relay Outputs	30 V max. at 1 A
Alarm Inputs	–0.3 V to 30 V max. internal 22 K pull-up
Alarm I/P Threshold	1.5 VDC
Alarm I/P Voltage (Low)	0.7 VDC max.
RS232	Fully compliant EIA-232

Mechanical

Rack Mount Kit	Hardware included to mount either a single unit or two connected units in a 19 in. rack
Construction	Steel chassis
Finish	Charcoal
Dimensions (W x D x H)	220 x 296 x 42 mm (8.66 x 11.65 x 1.65 in.)
Weight	
• LTC 2380/90	1.5 Kg (3.31 lbs)
• LTC 2382/90	1.8 Kg (3.97 lbs)

Environmental

Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	–35°C to 65°C (–31°F to 149°F)
Humidity	< 95%

Ordering Information**Digital Video Quad Processor LTC 2380/90**

Four (4) BNC video inputs, four (4) BNC video outputs, PAL/NTSC, 90-265 VAC, 47-63 Hz, 1.5 Kg (3.31 lbs)

Programmable Digital Video Quad Processor LTC 2382/90

Four (4) BNC video inputs, four (4) BNC video outputs, video recording and playback, PAL/NTSC, 90-265 VAC, 47-63 Hz, 1.81 Kg (3.97 lbs)

LTC 51x1 Series 2- and 4-position Economical Sequential Switchers



Features

- ▶ Automatic sequencing and adjustable dwell
- ▶ Vertical interval switching
- ▶ Instant homing and automatic skip
- ▶ LED indicators
- ▶ Optional rack mounting
- ▶ Color compatible

The LTC 5121 Series and LTC 5141 Series are automatic sequential video switchers. The LTC 5121 Series have 2-camera inputs and 1-monitor output; the LTC 5141 Series have 4-camera inputs and 1-monitor output. The LTC 5121/60 and the LTC 5141/60 operate from 120 VAC, 50/60 Hz; the LTC 5121/50 and the LTC 5141/50 operate from 220–240 VAC, 50/60 Hz.

Functions

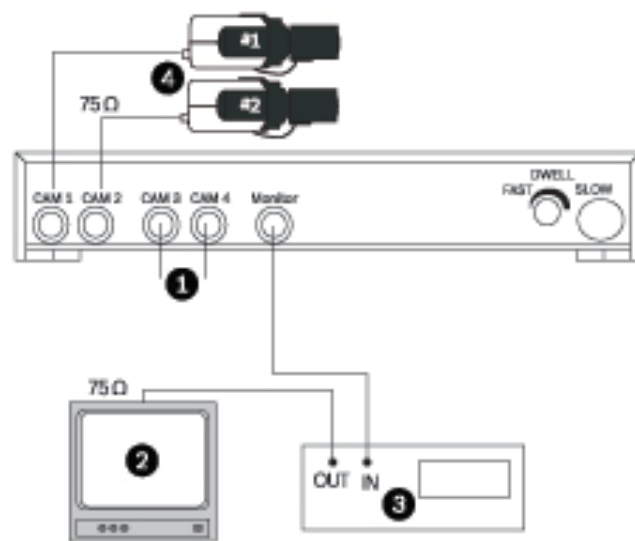
These switchers feature automatic sequencing, adjustable dwell time, vertical interval switching, instant homing, camera indicators, and automatic skip. These units automatically sequence from camera to camera; dwell time is adjustable from 2 to 45 seconds. Vertical interval switching is provided to reduce picture distortion during automatic sequencing. Any camera can instantly be called up using the camera selection buttons. Camera indicators are provided to indicate the currently selected camera. When camera inputs 3 or 4 are not used on the LTC 5141 Series, the unused camera input(s) will automatically be skipped during automatic sequencing. Simple front panel

controls include RUN and camera-select pushbuttons for easy operation. An adjustable DWELL control is provided on the back panel. Supplied as compact desktop units, these switchers can also be mounted with a rack-mount kit.

Certifications and Approvals

Electromagnetic Compatibility	EMC Requirements: CE Immunity, CE Emission Class B, FCC Class B, ICES-003
Safety	CE, UL, cUL

Installation/Configuration Notes



Typical Installation

- 1 Additional Cameras
- 2 Main Monitor
- 3 Time Lapse VCR
- 4 Camera

Technical Specifications

Electrical

Model No.	Rated Motor Voltage	Voltage Range	Power at Rated Voltage
LTC 5121/60	120 VAC, 50/60 Hz	105 to 130	4 W
LTC 5121/50	230 VAC, 50/60 Hz	198 to 204	4 W
LTC 5141/60	120 VAC, 50/60 Hz	105 to 130	4 W
LTC 5141/50	230 VAC, 50/60 Hz	198 to 204	4 W

Synchronization

LTC 5121/60 LTC 5141/60	525 line, 60 Hz; EIA, NTSC system compatible
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Model No.	Rated Motor Voltage	Voltage Range	Power at Rated Voltage
LTC 5121/50 LTC 5141/50	625 line, 50 Hz; CCIR, PAL system compatible		
Dwell Range	Approximately 2 seconds to 45 seconds		
Video Gain	Unity		
Bandwidth (–3 dB point)	12 MHz minimum		
Differential Gain	Less than 0.5%		
Differential Phase	Less than 1.5°		
Video Crosstalk (Input to Input Isolation)	45 dB typical at 3.58 MHz		
Video Feed-through (Input to Output Isolation)	–42 dB typical at 3.58 MHz		
Controls			
Momentary RUN pushbutton			
Momentary pushbuttons for each camera selection			
DWELL potentiometer on rear panel			
Indicators			
Green RUN LED indicates automatic sequencing mode			
Green LEDs indicate each camera input			
Connectors			
Video Inputs			
Signal Input Range	0.5 Vp-p to 2 Vp-p, 75 Ohm		
LTC 5121 Series	Two (2), BNC		
LTC 5141 Series	Four (4), BNC.		
Video Outputs	One (1), BNC, 75 Ohm		
Mechanical			
Finish	Charcoal		
Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11.0 x 1.59 in.)		
Height	One (1) standard rack unit		
Width	1/2 standard rack unit		
Weight	2 kg (4.5 lb)		
Environmental			
Temperature			
Operating	–18°C to 50°C (0°F to 122°F)		
Storage	–40°C to 60°C (–40°F to 140°F)		
Humidity	10% to 80% relative, non-condensing		
Vibration	3 g swept sine wave, 15 Hz to 2000 Hz		
Shock	50 g, 11 ms, 1/2 sine		
Humidity	10% to 80% relative, non-condensing		
Options			
LTC 9101/00 Rack Kit	For mounting one or two units in an EIA 48 cm (19 in.) rack		
Height	One (1) standard rack unit		
Width	One (1) standard rack unit		

Ordering Information**LTC 5121/50 2-position Economical Sequential Switchers****LTC 5121/50**

2 camera input, 1 monitor output, 230 VAC, 50 Hz

LTC 5121/60 2-position Economical Sequential Switchers**LTC 5121/60**

2 camera input, 1 monitor output, 115 VAC, 60 Hz

LTC 5141/50 4-position Economical Sequential Switchers**LTC 5141/50**

4 camera input, 1 monitor output, 230 VAC, 50 Hz

LTC 5141/60 4-position Economical Sequential Switchers**LTC 5141/60**

4 camera input, 1 monitor output, 115 VAC, 60 Hz

LTC 510x Series 4- and 8-position Premium Sequential Switchers



Features

- ▶ **Microprocessor-based**
- ▶ **On-screen status line and setup menus**
- ▶ **16 character camera titles**
- ▶ **Programmable dwell times and alarm dwell/capture time**
- ▶ **Automatic termination**
- ▶ **Foreign language on-screen menus available**

The LTC 5104 Series and LTC 5108 Series are automatic sequential video switchers. The LTC 5104 Series have 4-camera inputs and 1-monitor output; the LTC 5108 Series have 8-camera inputs and 2-monitor outputs. All models are microprocessor-based.

Functions

The auto-terminating BNC connectors eliminate the need for the user to select a 75 Ohm terminated video input or high impedance, un-terminated video input with looping video output. The switcher sets itself correctly for either situation. The looping video output allows another piece of equipment to be connected to the same video line.

Features include a 16-character camera title, nonvolatile memory back-up, on-screen status line, on-screen configuration menus in English, French, German, and Spanish (11 for the LTC 5104 Series and 12 for the LTC 5108 Series), and a SMART Setup. The status line displays the present camera number, the operation status, and camera title. There are five operation status notations:

- S – skipped camera displayed
- RUN – sequence running
- MA – monitor armed
- ALARM – alarm closure call-up
- HOLD – camera held.

The Configuration Menus include Dwell Adjust, Operating Mode (LTC 5108 Series only), Alarm Reset Mode, Alarm Capture, Capture Time, Alarm Dwell Time, Alarm Contacts Option, Status Line, Brightness and Background of titles, Display Position, System Reset, and Camera Title. The VideoSearch™ feature detects any camera inputs without video and sets them to be skipped.

These versatile switchers provide individually or globally adjustable camera dwell times from 1 to 64 seconds. Automatic camera call-up can be activated by motion detectors or remote alarm closures. Alarm contact can be selected either normally-open or normally-closed. Alarms override normal operating mode to home on alerted camera. Vertical interval switching gives roll-free viewing. An alarm output is provided to activate a VCR to record alarms. The minimum time that an alarm will be held once triggered (unless cleared or the alarm input is disabled) can be set to 1 to 63 seconds. Sequencing through multiple alarms can be set to occur at a dwell of 1 to 64 seconds.

Two modes of operation can be selected for the LTC 5108 Series switchers. The two modes only affect Monitor B; Monitor A continuously sequences regardless of mode. In the Sequencing Mode, Monitor B will show either an alarm call up of a camera, a camera under a HOLD condition or normal sequencing of cameras. In the Blanking Mode, Monitor B will show either an alarm call-up of a camera, a camera under a HOLD condition or a blank screen.

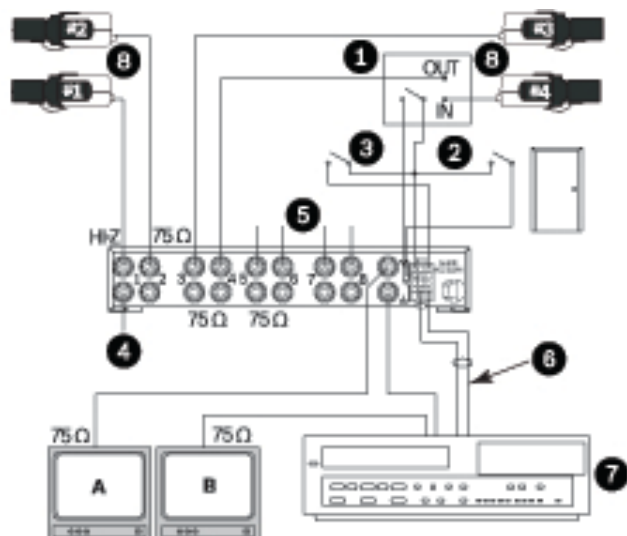
Simple front panel controls insure easy operation. They include: a dwell button for a dwell adjust menu; select buttons to select each channel; a skip/clear button to skip channels or to clear alarms; an alarm button to arm the monitor (Monitor B for the LTC 5108 Series); and a run button to initiate auto-sequencing or to select the next camera in the sequence.

Supplied as compact desktop units, these switchers can also be mounted with a rack-mount kit. A 609 mm (24 in.) cable with 15-pin connectors is provided for connecting a motion detector or remote alarm closures to the switcher.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

Installation/Configuration Notes



Typical Installation Using LTC 5108 Series Switcher

- | | |
|--|------------------------------|
| 1 Motion Detector | 5 Additional Cameras |
| 2 Door Switch | 6 Alarm Output Relay Closure |
| 3 Smoke Detector | 7 Video Recorder |
| 4 To Terminated Auxiliary Monitor or Terminated Switcher | 8 Cameras |

Monitor A

Sequencing Mode

1. Normal sequencing of camera inputs

Blanking Mode

1. Normal sequencing of camera inputs

Monitor B

Sequencing Mode

1. Normal sequencing (same as Monitor A)
2. "HOLD" condition
3. "ALARM" condition

Blanking Mode

1. Blank screen
2. "HOLD" condition
3. "ALARM" condition

Technical Specifications

Electrical

Model No. ¹	Rated Voltage	Voltage Range	Power at Rated Voltage
LTC 5104/60	120 VAC, 50/60 Hz	105 to 130	4 W
LTC 5104/50	230 VAC, 50/60 Hz	198 to 264	4 W
LTC 5108/60	120 VAC, 50/60 Hz	105 to 130	4 W
LTC 5108/50	230 VAC, 50/60 Hz	198 to 264	4 W

1) Models shown are for English on-screen menus model.

Switching Time	Less than 1 μs
Dwell Time	Each camera individually or globally set from 1 sec. to 64 sec.
Alarm Dwell Time	1 sec. to 64 sec.
Alarm Capture Time	1 sec. to 63 sec.
Video Gain	Unity

Bandwidth (–3 dB point)

	5 MHz minimum
Differential Gain	1% typical
Differential Phase	1°

Video Crosstalk (Input to Input Isolation)

	–50 dB typical at 3.58 MHz
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Video Feedthrough (Input to Output Isolation)

	–65 dB typical at 3.58 MHz
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Memory Back-Up	Nonvolatile memory back-up
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Controls

Front Panel	Momentary Push Button Controls: DWELL, SKIP/CLR, ALARM, RUN/NEXT, each video input
Internal	Video input has automatic termination
Indicators	ALARM, RUN/NEXT, each video input
Titling	16 character camera titling

Connectors

Video Inputs

0.5 V _{p-p} to 2 V _{p-p}	
LTC 5104 Series	Four (4) inputs; 8 BNC connectors
LTC 5108 Series	Eight (8) inputs; 16 BNC connectors

Video Outputs

LTC 5104 Series	One (1), BNC 75 Ohm
LTC 5108 Series	Two (2), BNC 75 Ohm

Alarm Inputs

LTC 5104 Series	Four (4)
LTC 5108 Series	Eight (8)

Connectors

Alarm Outputs

Isolated contact closures 1 A, 40 VAC/DC

Accessory Output	One 15-pin alarm/accessory connector.
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Mechanical

Cable (Included)	One cable with a 15-pin connector
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Finish	Gray
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Dimensions (W x D x H)	223 x 280 x 40 mm (8.77 x 11.0 x 1.59 in.)
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Weight	2 kg (4.5 lb)
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Environmental

Temperature

Operating	-18°C to 50°C (0°F to 122°F)
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Storage	-40°C to 60°C (-40°F to 140°F)
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Humidity	10% to 80% relative, non-condensing
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Vibration	3 g swept sine wave, 15 Hz to 2000 Hz
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Shock	50 g, 11 ms, 1/2 sine
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Options

LTC 9101/00 Rack Kit	For mounting one or two units in an EIA 22.86 cm (9 in.) rack
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Height	One (1) standard rack unit
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Width	One (1) standard rack unit
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Ordering Information

LTC 5104/50 4-position Premium Sequential Switchers

4 camera input, 1 monitor output, 230 VAC,
50 Hz

LTC 5104/51 4-position Premium Sequential Switchers - French

4 camera input, 1 monitor output, 230 VAC,
50 Hz

LTC 5108/51 8-position Premium Sequential Switchers - French	LTC 5108/51
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8 camera input, 2 monitor output, 230 VAC,
50 Hz

LTC 2662/90 Series Color Universal Video Multiplexer



Features

- ▶ **User-friendly**
- ▶ **AutoSet startup**
- ▶ **High quality video image**
- ▶ **Digital motion detection**
- ▶ **Timed events feature**
- ▶ **Camera display lockout**
- ▶ **Compatible with all VCR types**
- ▶ **Decodes multiple recording formats**

The Universal Multiplexer uses state-of-the-art technology to produce high quality, true-to-life color video images. Enhanced circuitry allows increased image accuracy and faster display rates without annoying on-screen-flickering (aliasing) common with multiscreen displays. These units can display any camera to either monitor A or B and include camera sequencing and alarm or action call-up. With an additional unique camera display lockout feature, the selected camera will not display on both monitors. However, selected video camera(s) will record in the background. These units can simultaneously record and view on multiscreens and can playback previously recorded tapes from 6 different manufacturers.

Functions

Furnished with a switching power supply, the Universal Multiplexer intelligently detects the input signal and input voltage and automatically sets the unit for PAL/NTSC or EIA/CCIR. User-friendly controls make these units fast and easy to program and operate. An on-screen programming menu in English, French, German, Spanish, Dutch, or Italian is included. A Quick Setup feature or customized system configuration is available through the advanced setup program. Help screens guide the operator through the setup process.

When the AutoSet feature is enabled, the system automatically configures itself for recording, sequencing, and video loss listing based on the number of connected cameras. These multiplexers also include a Timed Events feature, which allows preprogrammed set up parameters, including the record functions, to be activated based on the time of day. Up to six separate operational settings can be programmed and stored in memory. To enhance the recording of cameras, the Digital motion Detection feature intelligently analyzes the motion content of all camera inputs and ensures that the camera(s) with motion are recorded as a priority. There are two modes of the activity detection, "exclusive" and "interleave" which are also operational under alarm conditions.

In addition, the Digital Motion Detection feature provides four levels of sensitivity, including direction sensing and a special walk-through setup to eliminate false alarms. A selectable audible buzzer is available in this mode. Additionally, these units include a wide selection of features such as front panel controls, synchronization with VCR head switching, freeze, 4X zoom, video loss indicators, alarm capture, password security protection, multirelay function outputs, and full function time and date with 16 character titling record capability. All units are compatible with standard VHS and Super VHS format Normal or High Density VCRs and require no external synchronization of camera inputs since they employ time-based correction in all modes.

Certifications and Approvals

Electromagnetic Requirements (EMC)	CE Immunity, CE Emission Class A, FCC Class A
Safety	CE, UL, cUL

Technical Specifications**Electrical**

Description	Voltage Range	Power / Current
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16-channel Duplex	105 to 253, 50/60 Hz	30 W / 0.5 A
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Synchronization**Full Time-based Correction**

Monochrome	625 line, 50 Hz, CCIR
Monochrome	525 line, 60 Hz, EIA RS-170
Color	625 line, 50 Hz, PAL
Color	525 line, 60 Hz, NTSC

Digital Memory**720 H x 576 V**

AGC	Automatic or manual adjustment for each video input
Video Input Level	0.5 Vp-p to 2.0 Vp-p composite video signal

Operating Modes

Simultaneous record and multiscreen viewing
Simultaneous playback and multiscreen viewing

Display Modes**Live**

Monitor A and B	Full, quad, or multiscreen display
Monitor B	Full screen video viewing or sequence or alarm call-up monitors (during recording)

Playback

	Full, quad, or multiscreen display
	4X electronic zoom and freeze capability

Inputs

Camera	9 (16) inputs; 18 (32) BNC connectors, automatic looping termination BNC
VCR IN	One (1) BNC

Outputs

Monitor A	One (1) BNC
Monitor B	One (1) BNC
VCR OUT	One (1) BNC

Connectors

Power	IEC socket, 3-wire power cord with grounded plug; 1.8 m (6 ft)
Accessory Inputs/Outputs	One 25-pin D-type connector for alarms and accessories
Alarm Inputs	9 (16) individually selectable NO or NC alarm inputs
Relay Output	Two relay outputs (selectable NO or NC, one (1) for action/alarm and one (1) for video loss (the relay contacts handle up to 1 A at 40 VAC/VDC)
Vext Input	One (1)

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal case
Dimensions (W x D x H)	440 x 305 x 40 mm (17.3 x 12 x 1.7 in.)
Weight	5 kg (11 lb)
Rack Mount Kit (Included)	For mounting one unit in an EIA 48 cm (19 in.) rack

Environmental

Operating Temperature	10°C to 55°C (50°F to 131°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	0% to 90% relative, non-condensing

Ordering Information**LTC 2662/90 Color Universal Video****LTC 2662/90****Multiplexer**

16-channel, color, duplex, 105-253 VAC, 50/60 Hz

VMD01-Mx0 Series Digital Motion Detector



Features

- ▶ **Intelligent digital video motion detector**
- ▶ **Detects, tracks and stores motion images**
- ▶ **Automatic self-adaptation to changing environmental conditions**
- ▶ **Maximizes detection rate and reduces unwanted alarms**
- ▶ **Stand alone or system integration**
- ▶ **Intuitive graphical interface for fast effective set up**

Whenever you need reliable video motion detection, for indoor or outdoor use, the Bosch VMD01 is the unit of choice. The VMD01 is an intelligent digital motion detector that uses advanced video content analysis to reliably detect moving objects while suppressing unwanted alarms from spurious sources in the image. The unit intelligently adapts to changing lighting and environmental conditions such as rain, snow and leaves blowing in the wind.

The VMD01 can easily be configured to select the sensitive areas of the image, the minimum object size and the motion direction that will trigger an alarm, so that it only detects the important moving objects in a scene. A graphical display allows the sensitive area, size and perspective for objects, and movement direction to be simply drawn on the image. Once movement has been detected, the object causing the alarm is outlined on the screen, the motion tracked on the monitor, and pre and post alarm images are stored. The alarm condition can be signaled by means of a standard relay output and LED on the unit. The stored alarm images can be replayed on the monitor using the front panel rotary switch or by remote control.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Emission: EN50081-1, EN50130-4, EN50130-5, According FCC, UR
Safety	EN 60950

Parts Included

Quantity	Component
1	VMD01
4	Rubber feet for table top mounting

Technical Specifications

Electrical

Power Supply

Type	
VMD-PS90	External plug power adapter
VMD-RA90/VMD-RA00	Integrated in a 48 cm (19 in.) rack

	VMD01-M50	VMD01-M60
Operating Voltage	5 VDC, 50 Hz	5 VDC, 60 Hz
Power Consumption	6 W	6 W
Connection	RJ-12 (+5 V to 1.2; GND to 4.6)	

Video

Input	1 x BNC, VMD01-M50: PAL/CCIR, VMD01-M60: NTSC/EIA, 75 Ohm (internal termination), 1 Vp-p (0.5–2.0 Vp-p)
Output	1 x BNC, VMD01-M50: PAL/CCIR, VMD01-M60: NTSC/EIA, 1 Vp-p; live images, live images with outlined objects, stored alarm images, GUI for setup

Contacts

Input	Internal pull up to ground; 1: Arm/disarm sensor 2: Toggle parameter set
Output	Open collector, 100 mA, 12 V 1: Object detection; adjustable at peak, periodic peak or as long as object is detected 2: Video signal supervision

Relay

Output	30 V max., 1.0 A; 1: System/common failure (break contact); 2: Object detection, until reset (minimal for 1 second)
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LED

Conditions Indicated	1: (Green) power on, system failure 2: (Red) detector armed, video loss, or object detected
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Serial Port

Type	RS-232, 115 k Baud max. (for back-up purposes, connection of mouse)
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VMD

Type	Digital image analysis; multi-level changes in illumination, texture and motion; primarily outdoor applications (indoor use acceptable)
Results Display	Superimposed in video-out signal, yellow outline = initial position; red outline = present position; green = trajectory (B/W-lines if B/W signal at video-in)

Alarm Image Storage

Alarm Images	Five (5) pre-alarm images, one (1) alarm image, ten (10) post-alarm images
VMD Results	Superimposed outlines, fade out after five (5) seconds
Access	Via rotary switch on front panel or remote controlled (toggle) between live image and image storage; forward and backward stepping

Operation Modes

1 Reset of Alarms	Automatic
Normal Operation	Live image on video-out
Object Detection	Superimposed outlines in live image on video-out (last alarm sequence in storage)
2 Reset of Alarms	Manual
Normal Operation	Live image on video-out
Object Detection	Superimposed outlines in live image on video-out (first, not reset alarm sequence in storage)
3 Reset of Alarms	Manual
Normal Operation	Live image on video-out
Object Detection	Automatic switchover to the alarm image storage / first alarm image with superimposed outlines on video-out (first, not reset alarm sequence in storage)

Security

Passcode	Five (5) digits
Video Signal	Signal loss, bad signal-to-noise ratio, camera
Supervision	Blinded, insufficient scene illumination

Mounting Possibilities

Desktop (stand alone or as stack), wall or ceiling mounted (use VMD-WM), 48-cm (19-in.) rack mounted (use VMD-RA90 or VMD-RA00)

Mechanical

Dimensions (H x W x D)	110 x 48 x 207 mm (4.3 x 1.88 x 8.1 in.)
Weight	0.5 kg (1.1 lb) (without mouse and power supply unit)

Environmental

Operating Temperature	0°C to 45°C (32°F to 113°F)
Operation Humidity	8% to 80% (relative, non-condensing)

Ordering Information

VMD01-M50 Digital Motion Detector single-channel, stand alone, indoor and outdoor, 50 Hz, 5 VDC, 6 W	VMD01-M50
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Accessories

VMD-PS90 Power Supply for VMD01-Mx0, required if using as a single stand alone unit, 100–240 VAC/5 VDC, max. 2.4 A, cord 2.0 m, 4 x 0.6 with RJ-11 plug (+5 V to 1.2 V; GND to 4.6), 4 different adapters included for UK, US, Europe and AUS, approximately 85 x 50 x 32 mm (3.28 x 1.93 x 1.24 in.) (depth without contacts)	VMD-PS90
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VMD-SM Serial Mouse required for set-up for VMD01-Mx0 Note: This product has not been listed by UL.	VMD-SM
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VMD-RA90 Rack Mount 48-cm (19-in.), with power supply for up to eight VMD01-Mx0, 3VU, depth: 378 mm (14.88 in.), including eight bracket sets for VMD01 mounting, power supply: primary 110–230 VAC, Euro and US power cord 1.5 m (4.92 ft), secondary 8x5 VDC, 8 x 2 A (including cable set) Note: This product has not been listed by UL and is currently not for sale in the United States and Canada.	VMD-RA90
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VMD-RA00 Rack Mount 48-cm (19-in.), without power supply, 3 VU, depth: 378 mm (14.88 in.), including eight bracket sets for VMD01 mounting	VMD-RA00
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VMD-RADC Front Panel Covers dummy cover for VMD-RA00 and VMD-RA90, set of 4	VMD-RADC
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VMD-WM Wall Mount Bracket for one (1) VMD01-Mx0, 165 x 205 x 10 mm (6.6 x 8.05 x 0.39 in.), 0.4 kg (0.99 lb)	VMD-WM
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Video Recorder 400 Series



Features

- ▶ **4-Channel real-time H.264 recording**
- ▶ **View and record video in CIF, 2CIF, or 4CIF resolution**
- ▶ **Built-in web viewer for remote viewing, playback, control, and configuration**
- ▶ **Supports VGA and analog monitor output (up to 1280x1024)**
- ▶ **Dual streaming for local recording and remote viewing**
- ▶ **Smart Search**
- ▶ **Bosch and third-party Pan/Tilt/Zoom camera control**

The Bosch Video Recorder 400 Series is a 4 channel digital recorder that uses the latest H.264 compression technology. With a built-in web server for browser-based video management, the 400 Series is a fully integrated, stand-alone video solution that's ready to go, straight out of the box.

Available in basic and advanced versions, the 400 Series features a highly reliable embedded design that minimizes maintenance and operational costs. The basic version provides one audio input, while the advanced version has four audio inputs and a DVD writer.

System Overview

The Bosch 400 Series takes advantage of the latest H.264 compression technology that allows for more efficient video compression. This reduces the amount of storage and bandwidth needed while also producing better image quality. The 400 Series records multiple video and audio signals while simultaneously providing live multi-screen viewing and playback. Comprehensive search and playback functions provide quick recall and viewing of recorded video.

Recording

Ease of use is key to the 400 Series design. Simply connect the cameras, apply power, and the unit begins recording automatically. All recording takes place in the background with no operator intervention required.

The use of H.264 compression reduces the file size of recordings by as much as 30% compared to standard MPEG-4, without sacrificing image quality. The Bosch Video Recorder 400 Series can record at up to 25 (PAL) / 30 (NTSC) images per second, per channel at CIF resolution. Recording at 2CIF and 4CIF resolution is also possible by reducing the recording image rate settings. The recording rate and quality are individually configurable per channel for maximum flexibility.

The recording archives are split into two partitions. Alarm recordings (input and motion) are stored on one partition, while continuous recordings are stored on a separate one. An overwrite mode can be selected separately for each partition if required.

Dome Control

The 400 Series can control pan/tilt/zoom (PTZ) equipment via RS-232 and RS-485 serial communications. PTZ devices, including the Bosch AutoDome Modular and AutoDome Easy II, are supported.

Alarms

All models have extensive alarm handling functions and telemetry control. Alarm functions include motion detection in user-definable areas of the image on any camera input.

Local control and operation

The unit can be easily operated and programmed via the on-screen display menu system using either the front panel control keys, the mouse, or the remote control. Two monitor outputs provide full-screen, quad (main monitor only), and sequenced viewing.

Looping auto-terminating video inputs and outputs, audio inputs and output, and alarm inputs and outputs are located on the rear panel. The VGA connector provides an output for monitor A (main monitor). A CVBS video output is also provided for monitor B (spot monitor). Monitor A displays live and playback in full-screen or quad digital pictures that can be frozen and zoomed. Monitor B displays live full-screen pictures.

Remote control and operation

Use the built-in web application via a network for live viewing, playback, and configuration; there is no need to install any additional software for viewing. Four users can control the Bosch 400 Series simultaneously.

The Bosch 400 Series includes an authenticity check for both local and remote playback, ensuring recording integrity. The Bosch 400 Series Archive Player is provided for playback of secure video files.

Functions

The Bosch 400 Series has the following features:

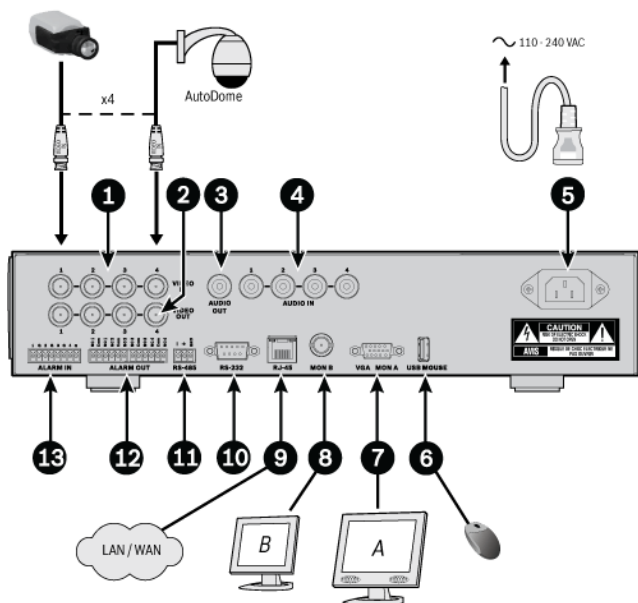
- 4 looped-through, auto-terminating camera inputs
- 1 or 4 audio inputs
- Simultaneous live viewing, recording, and playback
- 10/100Base-T Ethernet port for local or wide area network connection

- RS232 and RS485 serial port for serial communication
- VGA main monitor output plus CVBS for spot monitor
- Numerous VGA output quality settings
- Full-screen and Quad display capabilities in live and playback modes
- Playback one or more channels while showing live pictures of the other channels
- Spot monitor output with sequencing
- Audio output (mono)
- Motion detection
- Multiple search modes including smart search (search for motion within recorded images)
- 4 switching (alarm) inputs and 1 or 4 alarm outputs
- Video loss detection
- Audible alarm
- Pan, tilt, and zoom camera control via RS485/RS232
- Supports Bosch and Pelco protocols
- Local archiving via USB
- Local archiving via built-in DVD burner (advanced model)

Certifications and Approvals

Region	Certification	
Europe	CE	Declaration of Conformity
USA	FCC	Declaration of Conformity

Installation/Configuration Notes



Connections on back of DVR 400 (Advanced version)

- | | |
|-------------------------|--------------------------------------|
| 1. Camera inputs | 8. Monitor B output |
| 2. Camera outputs | 9. RJ45 network connector |
| 3. Audio output | 10. RS232 connector |
| 4. Audio input(s) | 11. RS485 connector for Dome control |
| 5. Power connector | 12. Alarm output(s) |
| 6. USB mouse connector | 13. Alarm inputs |
| 7. Monitor A VGA output | |

Technical Specifications

Electrical

Rated Voltage and Power

Power input	120–230 VAC $\pm 10\%$; 0.5 A; 50/60 Hz
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Video

Video Standard	SVGA PAL / NTSC auto-detect
Live Resolution	SVGA: 800x600, 1024x768 or 1280x1024 PAL: 720x576, NTSC: 720x484
Digital Zoom	2 times
AGC	Automatic gain adjustment for each video input
Compression	H.264
Inputs	Composite video 1 Vpp, 75 ohm, automatic termination
Outputs	Monitor A: VGA RGB Monitor B: 1 Vpp, 75 ohm, sync. 0.3 V $\pm 10\%$

Audio

Inputs	Mono RCA, 1.0 Vpp
Output	Mono RCA, 1.0 Vpp
Compression	ADPCM
Sample rate	16 kHz per channel
Bit rate	8-bit

Alarm Handling

Inputs	4 Inputs configurable NO/NC, max input voltage 15 VDC
Outputs	1 or 4 Relay outputs, configurable NO/NC, max. rated 30 VAC, 30 VDC 0.5 A continuous

Control

RS232	Output signals according to EIA/TIA-232-F, max. input voltage ± 25 V
RS232 Support	Bosch domes via RS232/Bi-phase converter
RS485	Output signals according to RS485, max. signal voltage -8 to +12 V
RS485 Support	Bosch domes, and Pelco P and D

Connectors

Video Inputs	4 Looping BNC, auto termination
Monitor	1 VGA d-SUB, 1 BNC
Alarm connectors	Screw terminal inputs, cable diameter AWG26-16 (0.13-1.5 mm)
Audio Inputs	1 or 4 RCA (CINCH)
Audio Output	1 RCA (CINCH)
Ethernet	RJ45, 10/100 BaseT according to IEEE802.3
RS232	DB9 Male
RS485	Screw terminal output, cable diameter AWG28-16 (0.08-1.5 mm)
USB	Type A Connector USB 1.1 on rear for mouse USB 2.0 on front for mouse or USB memory device

Storage

Hard Disk	1 SATA hard drive
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Video recording

Record Rate (IPS)

NTSC	Max. 30 IPS per channel, configurable: 30, 15, 7.5, 5, 3, 1
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PAL	Max. 25 IPS per channel, configurable: 25, 12.5, 6.25, 5, 2.5, 1
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Recording Quality	Best, High, Normal, Low, Lowest
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Average Recording Capacity

CIF, Normal, 25/30 IPS	PAL: 550 Hours, NTSC: 685 Hours
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CIF, Normal, 6.25/7.5 IPS	PAL: 1400 Hours, NTSC: 1700 Hours
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2CIF, Normal, 12.5/15 IPS	PAL: 460 Hours, NTSC: 575 Hours
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4CIF, Normal, 6.25/7.5 IPS	PAL: 370 Hours, NTSC: 460 Hours
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Maximum recording rates

Local Stream 4 channels

4CIF	PAL: 6 IPS, NTSC: 7.5 IPS
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2CIF	PAL: 12.5 IPS, NTSC: 15 IPS
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CIF	PAL: 25 IPS, NTSC: 30 IPS
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Local Stream 2 channels

4CIF	PAL: 12.5 IPS, NTSC: 15 IPS
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2CIF	PAL: 25 IPS, NTSC: 30 IPS
------	---------------------------

CIF	PAL: 25 IPS, NTSC: 30 IPS
-----	---------------------------

Local Stream 1 channel

4CIF	PAL: 25 IPS, NTSC: 30 IPS
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2CIF	PAL: 25 IPS, NTSC: 30 IPS
------	---------------------------

CIF	PAL: 25 IPS, NTSC: 30 IPS
-----	---------------------------

Remote (network) Stream 4 channels

CIF	PAL: 12.5 IPS, NTSC: 15 IPS
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Remote (network) Stream 2 channels

CIF	PAL: 25 IPS, NTSC: 30 IPS
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Display Modes

Monitor A	Full, quad (live and playback), Full sequence, alarm call-up (live)
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Monitor B	Full, full sequence, alarm call-up (live)
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Recording Modes

Normal partition	Continuous recording (with or without overwriting)
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Event partition	Input and motion recording (with or without overwriting)
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Mechanical

Dimensions (WxDxH)	357 x 362 x 78 mm (14.1 x 14.2 x 3.1 in) excluding cabling
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Weight	4.7 kg (10.34 lb) approx.
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Environmental**Temperature**

- Operating	+0°C to +40°C (+32°F to +104°F)
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- Storage	-40°C to +70°C (-40°F to +158°F)
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Humidity

- Operating	<93% non-condensing
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- Storage	<95% non-condensing
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Electromagnetic compatibility**EMC requirements**

- USA	FCC Part 15, Class B
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- EU	EMC Directive 89/336/EEC
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Immunity: EN50130-4

Emission: EN55022 Class B

Harmonics: EN61000-3-2

Voltage fluctuations: EN61000-3-3

Safety

- USA	UL60950-1
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- EU	CE, EN60950-1
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- Can.	CAN/CSA-C2.2 no. 60950-1
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Ordering Information**DVR-430-04A050 430 Series DVR**

430 Series DVR, 4 channel, 500 GB

DVR-430-04A050**DVR-451-04A050 451 Series DVR**

451 Series DVR, DVD, 4 channel, 500 GB

DVR-451-04A050

Divar XF Series Hybrid Digital Recorder



Features

- ▶ **Real-time H.264 recording and playback in genuine 4CIF resolution**
- ▶ **Hybrid recording of up to 16 analog cameras and up to 8 additional H.264 IP cameras**
- ▶ **Internal storage up to 4TB on four front-accessible hard drives**
- ▶ **On-board RAID-4 support**
- ▶ **Integration with third-party management software using VideoSDK**

The Divar XF offers top-of-the-line performance and adaptability. Equipped with four front-replaceable HD drives and extensive integration features, the XF is ideal for medium to large-scale or growing systems. Divar XF's superior image quality and compression gets the most out of CCTV images.

Functions

High performance

With real-time viewing, recording, and playback in genuine 4CIF resolution, the Divar XF captures all the details. More detail typically means increased bandwidth, bigger storage requirements, and increased costs — but not with the Divar XF. Bosch's advanced H.264 compression technology used in the Divar XF reduces bandwidth and storage needs by up to 30% compared to traditional MPEG-4 systems.

Embedded design

The embedded design of the Divar XF offers a higher level of security against network attacks than traditional systems and has lower maintenance requirements. The security of recordings remains high, while the need to install software patches and anti-virus updates is eliminated. Simple to set up and operate, the integrated architecture of the Divar XF makes life easier for both installers and users.

Power to adapt

The world of CCTV is changing — IP is replacing the analog standard in many areas. Divar XF has the power to adapt to this changing environment.

Divar XF is the ideal choice for growing applications which use a mix of analog and IP cameras. It can record 8 or 16 analog cameras and an additional 8 IP channels, all with a real-time frame rate at 4CIF resolution.

With the keyboard loop-through feature, up to 16 Divar XF recorders can be controlled from a single IntuiKey keyboard, creating a cost effective solution for applications with up to 384 cameras.

Bosch's VideoSDK provides a complete toolbox of modules for playback, searching, viewing live images, and more — simplifying integration to other surveillance systems. The VideoSDK even allows integration with specialized software tools such as fraud detection programs for retail applications.

Controlling Divar XF can be automated using CLI (Command Language Interface) commands. This allows Divar XF to be interfaced with external software (over RS232 or IP), which is typically used to sense alarms or handle access control on an existing (embedded) computer system. Functions include front panel emulation, configuration, and viewing status information. For instructions on how to use the CLI, please refer to the documentation on the Bosch Security Systems website.

Ease-of-use

Divar XF's four internal hard drives can be accessed via the front without opening the unit, simplifying service and making it easy to add additional storage on-site when needed. The disks can also be configured as a RAID 4 array for extra reliability. Export recordings by simply downloading them to a USB memory device, burning them to the optional built-in DVD recorder, or export them remotely via the Control Center software. Divar XF makes it easy to manage and transport images.

The Divar XF's intuitive interface with clear, menu-driven options is quick to learn and easy to use. Choose from a selection of control devices, including a mouse or CCTV keyboard. Flexibility is also abundant with Divar XF's extensive range of advanced functionality. Other convenient features include remote playback capability and dual VGA monitor support.

Live viewing, playback, configuration, remote management — it's all simple and straightforward with the Divar XF.

Comprehensive interfaces

Flexible interface options make it easy to connect to a variety of external devices.

- Up to 16 video input and output channels
- Up to 16 audio inputs and two dual-mono audio outputs
- Optional support for up to eight H.264 IP cameras
- Dual monitor output on VGA, BNC, and Y/C outputs
- Up to 4 front-replaceable hard disks with optional RAID-4 support
- Ethernet 10/100BaseT network connection
- Up to 16 alarm inputs and 5 relay outputs
- Biphase connection allows one cable to control Bosch PTZ cameras at a range of up to 1.5 km / 0.9 miles
- Third-party PTZ control via RS422/RS485 connection (Pelco D protocol)
- Bosch IntuiKey support with loop-through function
- Bosch Video Manager support (including Keyboard Expander LTC2604/x0)
- USB connectors front and back – connect a mouse to control the user interface, or archive video to a USB memory stick or similar device
- Optional built-in DVD recorder

Applications

The Divar XF is ideal for:

- Shopping centers and retail applications
- Banks and financial institutions
- City centers and public monitoring applications
- Crowd surveillance
- Casinos and hotel complexes

Certifications and Approvals

Region	Certification	
Europe	CE	Deklaracja zgodności
		Declaration of Conformity DHR-A
		Declaration of Conformity DHR-B
USA	FCC	Declaration of Conformity DHR-A
		Declaration of Conformity DHR-B

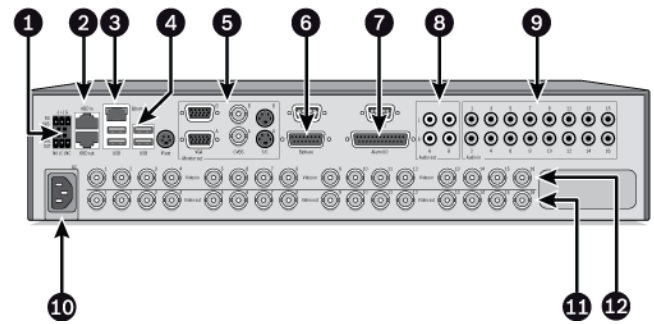
Electromagnetic compatibility

USA	FCC Part 15, Class B
EU	EMC directive 2004/108/EC
Immunity	EN50130-4
Emission	EN55022 Class B
Mains Harmonics	EN61000-3-2
Voltage fluctuations	EN61000-3-3

Safety

USA	UL60950-1
EU	EN60950-1
Can	CSA C22.2 No. 60950-1

Installation/Configuration Notes



- 1 RS485 / RS422 / Malfunction alarm
- 2 Keyboard input and looped-through output
- 3 Ethernet
- 4 USB ports
- 5 A + B monitor connections (VGA, CVBS, Y/C)
- 6 Biphase connection
- 7 Alarm inputs/outputs
- 8 Audio outputs
- 9 Audio inputs
- 10 Power input
- 11 Camera loop through
- 12 Camera video inputs

Recommended PC requirements for Control Center

Operating system	Windows XP or Vista
	DirectX 9c
Processor	Intel Pentium DualCore, 3.0 GHz or comparable
RAM memory	2048 MB or more
Free disk space	10 GB
Graphics card	NVIDIA GeForce 8600 or higher
Network interface	10/100-BaseT network interface
Operating system	Windows XP or Vista

Parts Included

Quantity	Component
1	Divar XF Hybrid Digital Recorder
2	Power supply cords
1	USB mouse
1	CD-ROM containing the software and manuals
1	Quick installation guide
1	Installation manual
1	Divar XF operation manual
1	Divar XF Control Center and Archive Player operation manual

Technical Specifications**Electrical****Rated Voltage and Power**

Power input	100 to 240 VAC; 50/60 Hz
Power consumption	Max. 2.5 to 1.0 A (250 Watt)

Video

Video standard	PAL or NTSC auto-detection
Resolution	704x576 PAL, 704x480 NTSC
Compression	H.264
Inputs	8 or 16 composite video 0.5 to 2 Vpp, 75 ohm automatic termination
Outputs	8 or 16 composite video 1 Vpp, 75 ohm, sync 0.3 V ± 10%

Audio

Inputs	8 or 16 line in, mono RCA, 1 Vpp, 10 kohm
Output	2 line out, dual mono RCA, 1 Vpp, 10 kohm
Compression	MPEG-2 layer II
Sampling rate	48 kHz per channel

Monitors

MON-A	Live, playback, menus VGA: analog RGB 1280x1024, 60/75 Hz (NTSC/PAL) CVBS: 1 Vpp, 75 ohm, BNC Y/C
MON-B	Live VGA: analog RGB 1024x768, 60/75 Hz (NTSC/PAL) CVBS: 1 Vpp, 75 ohm, BNC Y/C

Display Modes

Monitor A	Full, full sequence, quad, multi-screen (live and playback), event call-up (live)
Monitor B	Full, full sequence, quad, multi-screen, event call-up (live)
Frame rate PAL/NTSC	25/30 IPS per channel (real time)
Multiscreen mode 8 channels	1, 4, 9
Multiscreen mode 16 channels	1, 4, 9, 16
Zoom	1.5x, 2x, 3x, 5x

Alarm Handling

Inputs	Screw terminal 8 or 16 inputs configurable NO/NC, Max. input 40 VDC
Outputs	Screw terminal 4 relay outputs, configurable NO/NC, max. rated 30 VAC, 40 VDC, 0.5 A, continuous -10 VA
Remote notification	Via Control Center software

Connections

Ethernet	RJ45 modular jack 8 pins shielded: 10/100 Base-T
Biphase	Screw terminal connector (5 outputs) Maximum 5 controllable cameras per Biphase output Impedance 128 ohm, max. overvoltage protection ±40 V, max. cable length 1.5 km (0.9 miles)
Note: LTC 8785 translator needed for fixed-speed receivers/drivers	
PTZ control interface	RS485
Serial interface	RS232 output signals according to EIA/TIA-232 F, max. input voltage ±25 V 2xDB-9 male connector
Intuikey keyboard (KBD Digital or KBD Universal)	Conforms to RS485, max. signal voltage ±12 V, power supply to keyboard 11 to 12.6 VDC at max. 400 mA RJ11 modular jack 6 pins
USB	Five USB 2.0 ports

Network

Bandwidth control	0.1-100 Mbps limiter
Remote users	Maximum 5 simultaneously connected Control Center users
Protocol support	TCP/IP, DHCP, DNS, and SNTP
IP cameras	Up to 8 IP H.264 cameras (optional)
Supported IP H.264 devices	Dinion, FlexiDome, AutoDome Modular, EX series IP cameras, VIP X series encoders (running firmware 3.7 or later, max. 8 channels), and AutoDome Easy

Storage

Internal HDD	250, 500, 750 GB, or 1 TB per disk Up to 4 hard disks
Redundancy	RAID-4 (4 hard disks) (Optional, license required.) Effective storage = Smallest disk x 3

Exporting

DVD	Built-in DVD+R/RW recorder (optional)
USB	Flash memory or external HDD (FAT32)
IP	Control Center Software

Security

Password protection	Multi-level
Image authentication	All recordings and archives in native file format

Record Frame Rate

NTSC	Up to 30 IPS per channel at 352x240, 704x240 and 704x480
PAL	Up to 25 IPS per channel at 352x288, 704x288 and 704x576
IP Channels	Up to 25/30 IPS per channel at 4CIF dependent on connected IP device.

Recording

Overwrite modes	Continuous, overwrite after 1 to 99 days
Pre-alarm recording	Up to 120 s

Playback

Playback function	Fast forward/reverse, frame forward/reverse, freeze
Zoom	1.5x, 2x, 3x, 5x
Search mode	Date/time, Event (motion, input)

Mechanical

Dimensions (W x D x H) (excluding cabling)	446 x 443 x 88 mm (17.6 x 17.4 x 3.5 in)
Weight (incl. 4 hard disks)	Approx. 11 kg / 24 lbs
Rack mount kit (included)	For mounting one unit in an EIA 19" rack

Environmental

Operating temperature	+5 °C to +45 °C (+41 °F to +113 °F)
Storage temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Relative humidity	Operating: <93 % non-condensing Storage: <95 % non-condensing

Ordering Information

Divar XF 8CH 250GB 8-channel Digital Video Recorder 250 GB	DHR-0800A-025A
Divar XF 8CH 500GB 8-channel Digital Video Recorder 500 GB	DHR-0800A-050A
Divar XF 8CH 1.5TB 8-channel Digital Video Recorder 1.5 TB	DHR-0800A-150A
Divar XF 16CH 250GB 16-channel Digital Video Recorder 250 GB	DHR-1600A-025A
Divar XF 16CH 500GB 16-channel Digital Video Recorder 500 GB	DHR-1600A-050A
Divar XF 16CH 1.5TB 16-channel Digital Video Recorder 1.5 TB	DHR-1600A-150A
Divar XF 16CH 3TB 16-channel Digital Video Recorder 3 TB	DHR-1600A-300A
Divar XF INT. DVD 8CH 250GB 8-channel Digital Video Recorder 250 GB, internal DVD	DHR-0800B-025A
Divar XF INT. DVD 8CH 500GB 8-channel Digital Video Recorder 500 GB, internal DVD	DHR-0800B-050A
Divar XF INT. DVD 8CH 1.5TB 8-channel Digital Video Recorder 1.5 TB, internal DVD	DHR-0800B-150A
Divar XF INT. DVD 8CH 3TB 8-channel Digital Video Recorder 3 TB, internal DVD	DHR-0800B-300A
Divar XF INT. DVD 16CH 500GB 16-channel Digital Video Recorder 500 GB, internal DVD	DHR-1600B-050A
Divar XF INT. DVD 16CH 1.5TB 16-channel Digital Video Recorder 1.5 TB, internal DVD	DHR-1600B-150A
Divar XF INT. DVD 16CH 3TB 16-channel Digital Video Recorder 3 TB, internal DVD	DHR-1600B-300A

Ordering Information

Divar XF INT. DVD 16CH 4TB 16-channel Digital Video Recorder 4 TB, internal DVD	DHR-1600B-400A
Accessories	
LTC 2605/91 Video Manager for use with Divar all Series 1 & 2 models and System4 Multiplexer, 120/230 VAC, 50/60 Hz	LTC 2605/91
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
DHR-XS050-A 700 Series Storage Expansion 500 GB 500 GB storage expansion kit	DHR-XS050-A
DHR-XS100-A 700 Series Storage Expansion 1 TB 1 TB storage expansion kit	DHR-XS100-A
LTC 2604/50 Keyboard Port Expander Unit System4, 230 V, 50 Hz	LTC 2604/50
LTC 2604/60 Keyboard Port Expander Unit System4, 120 V, 60 Hz	LTC 2604/60
Software Options	
DHR-SIP04-A 700 Series License 4 IP 700 Series 4 IP License	DHR-SIP04-A
DHR-SIP08-A 700 Series License 8 IP 700 Series 8 IP License	DHR-SIP08-A
DHR-SRAID-A 700 Series License RAID 700 Series RAID License	DHR-SRAID-A

Divar MR Series Digital Video Recorder



Features

- ▶ **Cost effective, secure embedded design**
- ▶ **Efficient MPEG-4 file compression**
- ▶ **View and record video in CIF, 2CIF, or 4CIF resolution**
- ▶ **Bosch and third-party PTZ dome control**
- ▶ **Export to USB or optional DVD writer**

The Divar MR digital versatile recorder gives a compact and convenient CCTV management solution in an all-in-one embedded unit. It provides high-quality digital recording on up to 16 channels, with an internal storage capacity of up to 2 TB. The Divar MR boasts exceptional video quality and a high level of advanced functionality. Ease-of-use and versatility feature highly in its design, giving trouble-free recording and management.

Functions

The Divar MR offers high-quality, real-time digital recording on up to 16 channels. View and control cameras, handle alarms, and check device status all through one convenient interface. In addition, the Divar MR offers:

- Improved clarity for better recognition on recorded video
- Longer recording time
- An extended range of features
- Multiple interfacing options
- Powerful search functions
- Synchronous audio
- Remote configuration and management
- Low maintenance requirements
- Lower total cost of ownership

Image quality

The image quality of the Divar MR is excellent. Highly efficient MPEG-4 compression significantly reduces bandwidth and storage requirements compared to JPEG and wavelet technologies. Store more detail and extend retention periods while reducing overall storage costs. The Divar provides real-time recording in CIF resolution on all channels simultaneously. Use 4CIF to capture more detail in every scene for those applications where even greater clarity is needed.

Multiple control methods

A variety of control methods contribute to an outstanding system with a high degree of operational flexibility. Bosch's IntuiKey keyboard places an easy-to-use system control at your fingertips. Alternatively, use the Divar MR's front panel control buttons and jog dial, IR remote control, or a standard mouse for quick access to the system.

In addition to these control options, use the intuitive PC-based Divar MR Control Center software to easily manage multiple Divar MRs in your surveillance system. The Divar MR Control Center provides complete remote management, including live viewing and control, playback, configuration, and remote alarm notification. With the Control Center, all operation and control is centralized to create a highly scalable video management solution.

For added convenience, view live images using a web browser. This gives the freedom to access Divar MR images from virtually anywhere.

Embedded design

The embedded design of the Divar MR offers a higher level of security against network attacks than traditional systems and has a lower maintenance requirement. The security of recordings remains high while the need to install software patches and anti-virus updates is eliminated. Simple to set up and operate, the integrated architecture of the Divar MR makes life easier for both installers and users.

Operational convenience

The Divar incorporates a robust set of features designed to increase the convenience of operation:

- Easily compare past and present events by viewing live and playback images simultaneously in different cameos
- React immediately to events with the instant playback / recording functions – a dedicated button starts instant recording with a single push
- Automatically protect important event recordings against overwriting
- Quickly find events using the Smart Search feature to automatically detect changes within any area of the view selected
- Automatically trigger e-mail notifications when selected events occur

A dedicated Archive Player is included when video is exported, allowing video playback on a PC without installing additional software. The Archive Player also allows image authentication so that video tampering can be detected or ruled out in legal disputes.

Comprehensive interfaces

Flexible interface options make it easy to connect to a variety of external devices.

- Up to 16 video input and output channels
- VGA and dual monitor BNC outputs
- Audio inputs (4 or 8) and an audio output
- Ethernet 10/100BaseT network connection
- Up to 16 alarm inputs and 8 outputs
- Biphase connection allows one cable to control Bosch PTZ cameras at a range of up to 1.5 km / 0.9 miles
- Third-party PTZ control via RS422/RS485 connection
- USB connectors front and back – connect a mouse to control the user interface, or archive video to a USB memory stick or similar device

Note: The Divar MR's On Screen Display (OSD) is optimized for a VGA monitor. It is possible to display the OSD on the composite MONITOR A output but the quality of the OSD is reduced. We recommend using the unit's VGA MONITOR A output.

Applications

The Divar MR is available in 8 and 16 channel versions with a variety of hard drive capacities, and if required, an internal DVD writer. The Divar MR range delivers a comprehensive solution that is ideal for applications such as:

- Retail outlets
- Schools
- Apartment buildings
- Hotels

Tailor video content and memory to specialized needs by using the highly flexible recording/storage capability, thus helping to save space and reduce storage costs.

Certifications and Approvals

Region Certification

Europe	CE
USA	FCC + UL

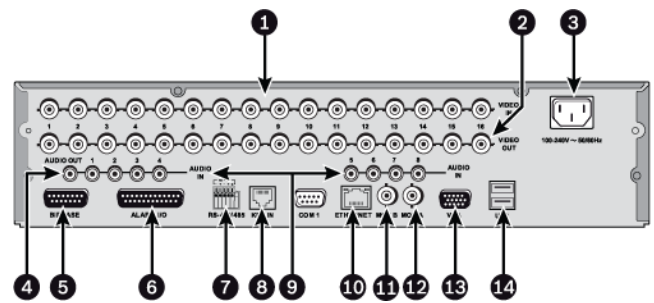
Electromagnetic compatibility

USA	FCC Part 15, Class B
EU	EMC directive 2004/108/EC
Immunity	EN50130-4
Emission	EN55022 Class B
Mains Harmonics	EN61000-3-2
Voltage fluctuations	EN61000-3-3

Safety

USA	UL60950-1
EU	EN60950-1
Can	CSA C22.2 No. 60950-1

Installation/Configuration Notes



1	Camera video inputs	8	Keyboard
2	Camera loop through	9	Audio inputs
3	Power input	10	Ethernet
4	Audio output	11	CVBS monitor B
5	Biphase connection	12	CVBS monitor A
6	Alarm inputs/outputs	13	VGA monitor
7	RS-485 / RS422	14	USB ports

Minimum PC requirements for Control Center

Operating system	Windows 2000 Professional, XP, Vista or Windows 7
	DirectX 8.1
Web browser	Internet Explorer 6
Processor	Intel Pentium III or above, AMD Athlon with 800 MHz or above
RAM memory	512 MB or more
Free disk space	50 MB
Video system	AGP VGA with 64 MB Video RAM or above.
Connection	10/100-BaseT network interface

Parts Included

Quantity	Component
1	Divar MR Digital Video Recorder
2	Power cords
1	Operation Manual
1	CD-ROM (with Divar MR PC software and Operation manuals)
1	Mouse
2	Connection boards for alarm I/O and Biphase
1	IR remote control unit
2	AAA batteries for remote control unit
1	Rack mount kit

Technical Specifications**Electrical****Rated Voltage and Power**

Power input	100 to 240 VAC; 50/60 Hz
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Power consumption	Max. 80 W (with 1x HDD)
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	Max. 120 W (with 4x HDD)
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	Max. 1.2 A
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Video

Video standard	PAL or NTSC selectable
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Resolution	704x576 PAL, 704x480 NTSC
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Compression	MPEG-4
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Inputs	8 or 16 composite video 0.5–2 Vpp, 75 ohm automatic termination
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Outputs	8 or 16 composite video 1 Vpp, 75 ohm
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Audio

Inputs	4 or 8 line in, 30 kohm
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Output	1 line, 100 kohm
--------	------------------

Compression	ADPCM2
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Sampling rate	8 KHz
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Monitors

VGA	Analog RGB 800x600
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	Monitor A Multi-screen, (VGA or CVBS)
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MON-A	CVBS 1 Vpp ± 0.1 V, 75 ohm, BNC
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	Monitor A multi-screen (VGA or CVBS)
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MON-B	CVBS 1 Vpp ± 0.1 V, 75 ohm, BNC
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	Monitor B spot/alarm
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Display Modes

Monitor A	Full, full sequence, quad, quad sequence, multi-screen (live and playback)
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Monitor B	Full, full sequence, quad, and event pop-up
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Frame rate 8 channels NTSC	240 IPS (real time per channel)
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Frame rate 16 channels NTSC	480 IPS (real time per channel)
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Frame rate 8 channels PAL	200 IPS (real time per channel)
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Frame rate 16 channels PAL	400 IPS (real time per channel)
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Multiscreen mode 8 channels	1, 4, 9, 1+5
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Multiscreen mode 16 channels	1, 4, 9, 16, 1+5, 1+7
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Alarm Handling

Inputs	Screw terminal 8 or 16 inputs configurable NO/NC,
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	Opto-coupled max. input 5 VDC
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Outputs	Screw terminal 4 or 8 relay outputs, configurable NO/NC, max. rated 1 A, 30 VAC, 0.3 A, 125 VAC
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Remote notification	Via e-mail or remote PC client
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Connections

Ethernet	RJ45 modular jack 8 pins shielded:
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	10/100 Base-T
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Biphase	Screw terminal connector (5 outputs)
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	Maximum 5 controllable cameras per Biphase output
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	Impedance 128 ohm, max. overvoltage protection ± 40 V, max. cable length 1.5 km (0.9 miles)
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PTZ control interface	RS485/RS422
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Serial interface	RS232 output signals according to EIA/TIA 232 F, max. input voltage ± 25 V
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	DB9 male connector
--	--------------------

Keyboard	Conforms to RS485, max. signal voltage ± 12 V, power supply to keyboard 11–12.6 V at max. 400 mA
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	RJ11 modular jack 6 pins
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USB	Three USB 2.0 ports
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Dome Protocols

Supported PTZ cameras	Bosch, Pelco D, Pelco P, Ganz DSCP, Ganz P360V1, LG Multix, LG SD168, Kalatel Cyberdom, Panasonic CS850, Samsung SCC Note: Bosch Intuikey keyboard is only supported by Bosch PTZ/Dome cameras.
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Network

Transmission speed	up to 120 IPS @ 352x288 PAL up to 120 IPS @ 352x240 NTSC
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Bandwidth control	Automatic
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Remote users	Maximum 5 simultaneously connected Control Center users
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Protocol support	ICP/IP, DHCP, DNS, DDNS, HTTP, and NTP
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Storage

Internal HDD	250, 500, 1000, or 2000 GB Up to 4 hard disks
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Internal DVD writer	DVD+R / DVD+RW,
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(not on all models)	DVD-R / DVD-RW,
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	CD-R / CD-RW
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External	Via USB (3x)
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Security

	Password protection
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	Image authentication
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Record Frame Rate :

8-channels NTSC	Up to 240 IPS @ 352x240
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	Up to 120 IPS @ 704x240
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	Up to 60 IPS @ 704x480
--	------------------------

16-channels NTSC	Up to 480 IPS @ 352x240
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	Up to 240 IPS @ 704x240
--	-------------------------

	Up to 120 IPS @ 704x480
--	-------------------------

8-channels PAL	Up to 200 IPS @ 352x288
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	Up to 100 IPS @ 704x288
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	Up to 50 IPS @ 704x576
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16-channels PAL	Up to 400 IPS @ 352x288
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Record Frame Rate :

Up to 200 IPS @ 704x288

Up to 100 IPS @ 704x576

Recording

Overwrite modes	Normal partition (continuous and instant recording)
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	Event partition (input and motion recording)
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	Normal and event partition
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	Off
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Pre-alarm recording	Up to 60 sec.
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Search

Playback function	FF, FB, Frame advance (control keys and jog dial)
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Search mode	Date/time, Event (motion, input), bookmark, smart
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Mechanical

Dimensions (W x D x H)	430 x 435 x 89 mm (16.9 x 17.1 x 3.5 in)
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Weight (4x hard disks)	Approx. 9 kg (19.8 lb)
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Rack mount kit	For mounting one unit in an EIA 19-inch rack
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Environmental

Operating Temperature	+0°C to +40°C (+32°F to +104°F)
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Humidity	0%RH to 80%RH
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Ordering Information

DVR-8L-050A Divar MR: INT. DVD, 8 CH, 500 GB	DVR-8L-050A
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Divar MR Digital Video Recorder with internal DVD writer, 8 channels, and 500 GB	
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DVR-8L-100A Divar MR: INT. DVD, 8 CH, 1000 GB	DVR-8L-100A
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Divar MR Digital Video Recorder with internal DVD writer, 8 channels, and 1000 GB	
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DVR-16K-050A Divar MR: 16 CH, 500 GB	DVR-16K-050A
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Divar MR Digital Video Recorder with 16 channels and 500 GB	
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DVR-16L-050A Divar MR: INT.DVD, 16 CH, 500 GB	DVR-16L-050A
--	---------------------

Divar MR Digital Video Recorder with internal DVD writer, 16 channels, and 500 GB	
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DVR-16L-100A Divar MR: INT.DVD, 16 CH, 1000 GB	DVR-16L-100A
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Divar MR Digital Video Recorder with internal DVD writer, 16 channels, and 1000 GB	
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DVR-16L-200A Divar MR: INT.DVD, 16 CH, 2000 GB	DVR-16L-200A
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Divar MR Digital Video Recorder with internal DVD writer, 16 channels, and 2000 GB	
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700 Series Hybrid/ Network Recorder



Features

- ▶ **Real-time H.264 recording and playback in genuine 4CIF resolution for up to 32 cameras simultaneously**
- ▶ **Hybrid models offer up to 16 analog and 16 IP camera channels; IP-only models offer up to 32 IP camera channels**
- ▶ **Fully automated assignment and management of H.264 IP cameras**
- ▶ **Internal storage up to 8 TB on four front-accessible hard drives with optional on-board RAID-4 support**
- ▶ **Text support for storage and retrieval of video, synchronized to external data like ATM/POS data, license plate numbers, or GPS data**

The Bosch 700 Series Hybrid and Network Recorders offer top-of-the-line performance and adaptability. Equipped with four front-replaceable hard drives and extensive integration features, the 700 Series is ideal for medium to large-scale systems. 700 Series' superior image quality and compression gets the most out of CCTV images. Available in both IP-only and hybrid models, the 700 Series can handle even the most challenging CCTV applications without excessive demands from installers and operators.

Functions

High performance H.264

With real-time viewing, recording, and playback in genuine 4CIF resolution, 700 Series Recorders capture all the details. More detail typically means increased bandwidth, larger storage requirements, and increased costs – but not with the 700 Series. Bosch's advanced H.264 compression technology used in the 700 Series reduces bandwidth and storage needs by up to 30% or more, compared to traditional MPEG-4 systems.

Embedded design

The embedded design of the 700 Series Recorder offers a higher level of security against network attacks than traditional systems and has lower maintenance requirements. The security of recordings remains high while eliminating the need to install software patches and anti-virus updates. The integrated architecture, built-in installation wizards, and low-maintenance design make the 700 Series easy to set up and operate while delivering a lower total cost of ownership.

Hybrid Models

The world of CCTV is changing – IP is replacing the analog standard in many areas. Bosch's 700 Series Recorders have the flexibility to adapt to this changing environment.

The 700 Series Hybrid Recorder is the ideal choice for growing applications which use a mix of analog and IP cameras. It can record 8 or 16 analog cameras and an additional 8 or 16 IP channels, all with real-time frame rates at 4CIF resolution.

Network Models

The 700 Series Network Recorder is the perfect match for pure IP environments. While typical IP solutions consist of many separate components – NVR Server, PC Client, external RAID storage array and software – the 700 Series Network Recorder is an all-in-one IP video management solution.

With support for a total of 32 H.264 cameras and a fully automated, onboard IP camera management system, 700 Series is straight forward to set up and maintain right out-of-the-box.

Power to integrate

Bosch's VideoSDK provides a complete toolbox of modules for playback, searching, viewing live images, and more – simplifying integration with other surveillance systems. The VideoSDK even allows integration with specialized software tools such as fraud detection programs for retail applications.

Control of 700 Series Recorders can be automated using CLI (Command Language Interface) commands. This allows the 700 Series to be interfaced with external software (over RS232 or IP), which is typically used to sense alarms or handle access control on an existing (embedded) computer system. Functions include front panel emulation, configuration, and viewing status information. For instructions on how to use the CLI, please refer to the documentation on the Bosch Security Systems website.

Record text data together with associated video (e.g. from an ATM machine, license plate reader, or cash register) using the text support feature. Searching text data allows fast retrieval of the associated video and provides legal evidence in the event of fraud.

Flexible and reliable storage

Access the four internal hard drives via the front without opening the unit, thus simplifying service and making it easy to add additional storage on-site when needed. Configure the disks as a RAID 4 array for extra reliability.

Expand storage further with an external Bosch iSCSI video storage array. This makes the 700 Series ideal for applications requiring continuous recording at the highest resolution, frame rate, and retention time.

Ease of use

Find key events in recorded video quickly by utilizing the unit's smart search to find changes only in selected areas. Compare past and present events by simultaneously viewing live images with playback scenes.

Export recordings by simply downloading them to a USB memory device, burning them to the optional built-in DVD recorder, or exporting them remotely via the Control Center software. The 700 Series makes it easy to manage and transport images. All video is digitally watermarked to ensure the credibility of recordings.

The unit's intuitive interface with clear, menu-driven options is quick to learn and easy to use. Choose from a selection of control devices, including a mouse or CCTV keyboard. With the keyboard loop-through feature, up to sixteen 700 Series Recorders can be controlled from a single IntuiKey keyboard.

Flexibility is also abundant with its extensive range of advanced functionality. Other convenient features include remote playback capability and dual VGA monitor support. Live viewing, playback, configuration, remote management — it is all simple and straightforward with the 700 Series.

Comprehensive interfaces

Flexible interface options make it easy to connect to a variety of external devices.

- Up to 16 analog video inputs and 16 IP camera inputs on hybrid models, or up to 32 IP camera inputs on IP-only models
- Up to 16 audio inputs (DHR Models only) and two dual-mono audio outputs
- One or two monitor (DHR models only) outputs on VGA, CVBS, and Y/C outputs
- Up to 4 front-replaceable hard disks with optional RAID-4 support
- One or two Ethernet 10/100/1000 BaseT network connections
- Up to 16 alarm inputs and 5 relay outputs
- Biphase connection allows one cable to control Bosch PTZ cameras at a range of up to 1.5 km / 0.9 miles
- Third-party PTZ control via RS422/RS485 connection (Pelco D protocol)
- Bosch IntuiKey support with loop-through function
- Bosch Video Manager support (including Keyboard Expander LTC2604/x0)
- USB connectors front and back — connect a mouse to control the user interface, or archive video to a USB memory stick or similar device
- Optional built-in DVD recorder
- Text support for storage and retrieval of video synchronized to external data like ATM/POS data, License plate numbers, or GPS data

Applications

The 700 Series Recorder is ideal for:

- Shopping centers and retail applications
- Banks and financial institutions
- City centers and public monitoring applications
- Crowd surveillance
- Casinos and hotel complexes

Certifications and Approvals

Region	Certification
Europe	CE
	Declaration of Conformity DNR models Declaration of Conformity DHR models
USA	FCC
	Declaration of Conformity DNR models Declaration of Conformity DHR models

Electromagnetic compatibility

USA	FCC Part 15, Class B
EU	EMC directive 2004/108/EC
Immunity	EN50130-4
Emission	EN55022 Class B
Mains Harmonics	EN61000-3-2
Voltage fluctuations	EN61000-3-3
Alarm standard	EN50130-5:1998

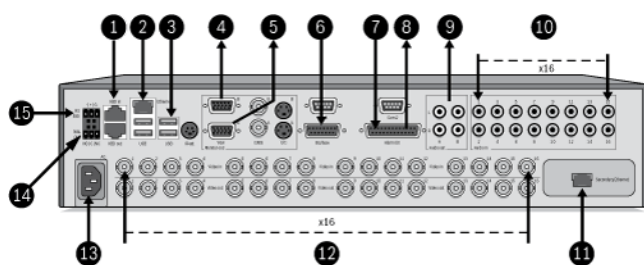
Safety

USA	UL60950-1
EU	EN60950-1
Can	CSA C22.2 No. 60950-1

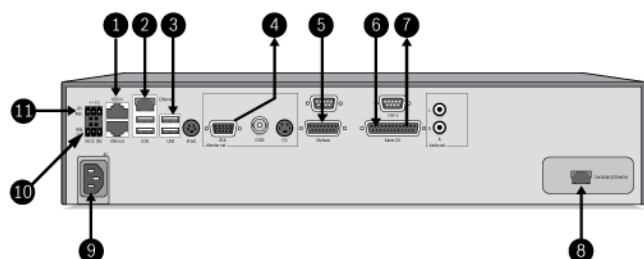
Installation/Configuration Notes

Recommended PC requirements for Control Center

Operating system	Windows XP, Vista, or 7
	DirectX 9c
Processor	Intel Pentium DualCore, 3.0 GHz or comparable
RAM memory	2048 MB or more
Free disk space	10 GB
Graphics card	NVIDIA GeForce 8600 or higher
Network interface	10/100/1000 BaseT



- 1 Keyboard input and looped-through output
- 2 Ethernet
- 3 USB ports
- 4 B monitor connections (VGA, CVBS, Y/C)
- 5 A monitor connections (VGA, CVBS, Y/C)
- 6 Biphas connection
- 7 Alarm inputs
- 8 Alarm outputs
- 9 Audio outputs
- 10 Audio inputs
- 11 Secondary Ethernet (2 GigE versions)
- 12 Camera loop through
- 13 Power input
- 14 Malfunction alarm output
- 15 RS485 port



- 1 Keyboard input and looped-through output
- 2 Ethernet
- 3 USB ports
- 4 Monitor connections (VGA, CVBS, Y/C)
- 5 Biphas connection
- 6 Alarm inputs
- 7 Alarm outputs
- 8 Secondary Ethernet (2 GigE versions)
- 9 Power input
- 10 Malfunction alarm output
- 11 RS485 port

Parts Included

Quantity	Component
1	Divar 700 Series Recorder
2	Power supply cords
1	USB mouse
1	CD-ROM containing the software and manuals
1	Quick installation guide
1	Installation and operation manual
1	Divar 700 Series Control Center operation manual
1	Divar 700 Series Archive Player operation manual

Technical Specifications

Electrical

Rated Voltage and Power

Power input	100 to 240 VAC; 50/60 Hz
Power consumption	Max. 2.5 to 1.0 A (250 Watt) Able to withstand power dips up to 100 MS, assuring continuous operation

Video

Video standard	PAL or NTSC auto-detection
Resolution	704x576 PAL, 704x480 NTSC
Compression	H.264
Inputs	8 or 16 composite video 0.5 to 2 Vpp, 75 ohm automatic termination
Outputs	8 or 16 composite video 1 Vpp, 75 ohm, sync 0.3 V ± 10%

Audio

Inputs	8 or 16 line in (DHR models only), mono RCA, 1 Vpp, 10 kohm
Output	2 line out, dual mono RCA, 1 Vpp, 10 kohm
Compression	MPEG-1 layer II
Sampling rate	48 kHz per channel

Monitors

MON-A	Live, playback, menus
	VGA: analog RGB 1280x1024, 60/75 Hz (NTSC/PAL)
	CVBS: 1 Vpp, 75 ohm, BNC
MON-B (Hybrid models only)	Y/C
	Live
	VGA: analog RGB 1024x768, 60/75 Hz (NTSC/PAL)
	CVBS: 1 Vpp, 75 ohm, BNC
	Y/C

Display Modes

Monitor A	Full, full sequence, quad, multi-screen (live and playback), event call-up (live)
Monitor B (Hybrid models only)	Full, full sequence, quad, multi-screen, event call-up (live)
Frame rate PAL/NTSC	25/30 IPS per channel (real time)
Multiscreen mode 8 channels	1, 2x2, 3x3 (showing 8 channels)
Multiscreen mode 16 channels	1, 2x2, 3x3, 4x4
Zoom	1.5x, 2x, 3x, 5x

Alarm Handling

Inputs	Screw terminal, 8 or 16 inputs, configurable NO/NC, Max. input 40 VDC
Outputs	Screw terminal 4 relay outputs, configurable NO/NC, max. rated 30 VAC, 40 VDC, 0.5 A, continuous -10 VA
Remote notification	Via Control Center software
Malfunction relay	Temperature related failures, Voltage ratings, Disk failures

Connections

Ethernet	1 or 2 RJ45 modular jack, 8 pins shielded: 10/100/1000 Base-T
Biphase	Screw terminal connector (5 outputs) Maximum 5 controllable cameras per Biphase output Impedance 128 ohm, max. overvoltage protection ± 40 V, max. cable length 1.5 km (0.9 miles)
Note: LTC 8785 translator needed for fixed-speed receivers/drivers	
PTZ control interface	RS485
Serial interface	RS232 output signals according to EIA/TIA-232 F, max. input voltage ± 25 V 2xDB-9 male connector
Intuikey keyboard (KBD Digital or KBD Universal)	Conforms to RS485, max. signal voltage ± 12 V, power supply to keyboard 11 to 12.6 VDC at max. 400 mA RJ11 modular jack 6 pins
USB	Five USB 2.0 ports
10/100/1000 Base-T network interfaces (max 2)	Connect with Bosch iSCSI Video Storage Arrays

Network

Bandwidth control	0.1-100 Mbps limiter
Remote users	Maximum 5 simultaneously connected Control Center users
Protocol support	TCP/IP, DHCP, DNS, and SNTP
IP cameras	Up to 16 IP H.264 for DHR models (optional) Up to 32 IP H.264 cameras for DNR models (optional)
Supported IP H.264 devices	Divion, FlexiDome, AutoDome Modular, EX series IP cameras, VIP X series encoders (running firmware 3.7 or later, and AutoDome Easy IP

Storage

Internal HDD	500 GB, 1 or 2 TB per disk Up to 4 hard disks
Redundancy	RAID-4 (4 hard disks plus optional license required) Effective storage = Smallest disk x 3

Exporting

DVD	Built-in DVD+R/RW recorder (optional)
USB	Flash memory or external HDD (FAT32)
Network	Control Center Software

Security

Password protection	Multi-level
Image authentication	All recordings and archives in native file format

Record Frame Rate

NTSC	Up to 30 IPS per channel at 352x240, 704x240 and 704x480
PAL	Up to 25 IPS per channel at 352x288, 704x288 and 704x576
IP Channels	Up to 25/30 IPS per channel at 4CIF

Recording

Overwrite modes	Continuous, overwrite after 1 to 99 days
Pre-alarm recording	Up to 120 s

Playback

Playback function	Fast forward/reverse, frame forward/reverse, freeze
Zoom	1.5x, 2x, 3x, 5x
Search mode	Date/time, Event (motion, input), Text, Smart Search

Mechanical

Dimensions (W x D x H) (excluding cabling)	446 x 443 x 88 mm (17.6 x 17.4 x 3.5 in)
Weight (incl. 4 hard disks)	Approx. 11 kg / 24 lbs
Rack mount kit (included)	For mounting one unit in an EIA 19" rack

Environmental

Operating temperature	+5 °C to +45 °C (+41 °F to +113 °F)
Storage temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Relative humidity	Operating: <93 % non-condensing Storage: <95 % non-condensing

Model options

	Hybrid/ IP	AN CH	IP CH st/max	DIGI in/out	DVD	GigE
DHR-730-08AXXX	Hybrid	8	0/8	8/5		1
DHR-732-08AXXX	Hybrid	8	0/8	8/5	x	1
DHR-751-16AXXX	Hybrid	16	0/16	16/5		1
DHR-753-16AXXX	Hybrid	16	0/16	16/5	x	1
DHR-754-16AXXX	Hybrid	16	0/16	16/5	x	2
DNR-732-08AXXX	IP only	0	8/16	8/5	x	1
DNR-753-16AXXX	IP only	0	16/32	16/5	x	1
DNR-754-16AXXX	IP only	0	16/32	16/5	x	2

XXX	Equals model storage options:
000	0000 GByte HDD
050	0500 GByte HDD (1 drive)
200	2000 GByte HDD (1 drive)
400	4000 GByte HDD (2 drive)
800	8000 GByte HDD (4 drive)
Note	RAID operation requires a 4-drive system and a DHR-SRAID-A license.

Ordering Information

DHR-730-08A000 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 0 GB	DHR-730-08A000
DHR-730-08A050 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 500 GB	DHR-730-08A050
DHR-730-08A200 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 2 TB	DHR-730-08A200
DHR-730-08A400 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 4 TB	DHR-730-08A400
DHR-730-08A800 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 8 TB	DHR-730-08A800
DHR-751-16A000 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 0 GB	DHR-751-16A000
DHR-751-16A050 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 500 GB	DHR-751-16A050
DHR-751-16A200 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 2 TB	DHR-751-16A200
DHR-751-16A400 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 4 TB	DHR-751-16A400
DHR-751-16A800 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 8 TB	DHR-751-16A800
DHR-732-08A000 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 0 GB	DHR-732-08A000
DHR-732-08A050 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 500 GB	DHR-732-08A050
DHR-732-08A200 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 2 TB	DHR-732-08A200
DHR-732-08A400 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 4 TB	DHR-732-08A400
DHR-732-08A800 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 8 TB	DHR-732-08A800
DHR-753-16A000 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 0 GB	DHR-753-16A000
DHR-753-16A050 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 500 GB	DHR-753-16A050
DHR-753-16A200 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 2 TB	DHR-753-16A200
DHR-753-16A400 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 4 TB	DHR-753-16A400
DHR-753-16A800 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 8 TB	DHR-753-16A800
DNR-732-08A000 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 0 GB	DNR-732-08A000

Ordering Information

DNR-732-08A050 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 500 GB	DNR-732-08A050
DNR-732-08A200 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 2 TB	DNR-732-08A200
DNR-732-08A400 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 4 TB	DNR-732-08A400
DNR-732-08A800 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 8 TB	DNR-732-08A800
DNR-753-16A000 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 0 GB	DNR-753-16A000
DNR-753-16A050 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 500 GB	DNR-753-16A050
DNR-753-16A200 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 2 TB	DNR-753-16A200
DNR-753-16A400 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 4 TB	DNR-753-16A400
DNR-753-16A800 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 8 TB	DNR-753-16A800
DHR-754-16A000 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 0 GB	DHR-754-16A000
DHR-754-16A050 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 500 GB	DHR-754-16A050
DHR-754-16A200 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 2 TB	DHR-754-16A200
DHR-754-16A400 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 4 TB	DHR-754-16A400
DHR-754-16A800 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 8 TB	DHR-754-16A800
DNR-754-16A000 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 0 GB	DNR-754-16A000
DNR-754-16A050 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 500 GB	DNR-754-16A050
DNR-754-16A200 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 2 TB	DNR-754-16A200
DNR-754-16A400 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 4 TB	DNR-754-16A400
DNR-754-16A800 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 8 TB	DNR-754-16A800

Ordering Information**Accessories**

DHR-XS050-A 700 Series Storage Expansion 500 GB 500 GB storage expansion kit	DHR-XS050-A
DHR-XS100-A 700 Series Storage Expansion 1 TB 1 TB storage expansion kit	DHR-XS100-A
DHR-XS200-A 700 Series Storage Expansion 2 TB 2 TB storage expansion kit	DHR-XS200-A
DVRXEAP01 ATM/POS Bridge ATM/POS bridge Divar	DVRXEAP01
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
LTC 2604/50 Keyboard Port Expander Unit System4, 230 V, 50 Hz	LTC 2604/50
LTC 2604/60 Keyboard Port Expander Unit System4, 120 V, 60 Hz	LTC 2604/60
LTC 2605/91 Video Manager for use with Divar all Series 1 & 2 models and System4 Multiplexer, 120/230 VAC, 50/60 Hz	LTC 2605/91
REG-SENTRY-00-1EU REG Sentry Access Control Access Control REG Sentry-00, No Camera	REG-SENTRY-00-1EU
REG-SENTRY-X-1EU REG Sentry Access Control Access Control REG Sentry-X, 16 mm PAL	REG-SENTRY-X-1EU
Software Options	
DHR-SIP01-A 700 Series License 1 IP 700 Series License 1 IP	DHR-SIP01-A
DHR-SIP04-A 700 Series License 4 IP 700 Series 4 IP License	DHR-SIP04-A
DHR-SIP08-A 700 Series License 8 IP 700 Series 8 IP License	DHR-SIP08-A
DHR-SRAID-A 700 Series License RAID 700 Series RAID License	DHR-SRAID-A
DXS-700 Series Text license 700 Series Text license	DXS-700-Text

Divar XF Series Hybrid Digital Recorder



Features

- ▶ **Real-time H.264 recording and playback in genuine 4CIF resolution**
- ▶ **Hybrid recording of up to 16 analog cameras and up to 8 additional H.264 IP cameras**
- ▶ **Internal storage up to 4TB on four front-accessible hard drives**
- ▶ **On-board RAID-4 support**
- ▶ **Integration with third-party management software using VideoSDK**

The Divar XF offers top-of-the-line performance and adaptability. Equipped with four front-replaceable HD drives and extensive integration features, the XF is ideal for medium to large-scale or growing systems. Divar XF's superior image quality and compression gets the most out of CCTV images.

Functions

High performance

With real-time viewing, recording, and playback in genuine 4CIF resolution, the Divar XF captures all the details. More detail typically means increased bandwidth, bigger storage requirements, and increased costs — but not with the Divar XF. Bosch's advanced H.264 compression technology used in the Divar XF reduces bandwidth and storage needs by up to 30% compared to traditional MPEG-4 systems.

Embedded design

The embedded design of the Divar XF offers a higher level of security against network attacks than traditional systems and has lower maintenance requirements. The security of recordings remains high, while the need to install software patches and anti-virus updates is eliminated. Simple to set up and operate, the integrated architecture of the Divar XF makes life easier for both installers and users.

Power to adapt

The world of CCTV is changing — IP is replacing the analog standard in many areas. Divar XF has the power to adapt to this changing environment.

Divar XF is the ideal choice for growing applications which use a mix of analog and IP cameras. It can record 8 or 16 analog cameras and an additional 8 IP channels, all with a real-time frame rate at 4CIF resolution.

With the keyboard loop-through feature, up to 16 Divar XF recorders can be controlled from a single IntuiKey keyboard, creating a cost effective solution for applications with up to 384 cameras.

Bosch's VideoSDK provides a complete toolbox of modules for playback, searching, viewing live images, and more — simplifying integration to other surveillance systems. The VideoSDK even allows integration with specialized software tools such as fraud detection programs for retail applications.

Controlling Divar XF can be automated using CLI (Command Language Interface) commands. This allows Divar XF to be interfaced with external software (over RS232 or IP), which is typically used to sense alarms or handle access control on an existing (embedded) computer system. Functions include front panel emulation, configuration, and viewing status information. For instructions on how to use the CLI, please refer to the documentation on the Bosch Security Systems website.

Ease-of-use

Divar XF's four internal hard drives can be accessed via the front without opening the unit, simplifying service and making it easy to add additional storage on-site when needed. The disks can also be configured as a RAID 4 array for extra reliability. Export recordings by simply downloading them to a USB memory device, burning them to the optional built-in DVD recorder, or export them remotely via the Control Center software. Divar XF makes it easy to manage and transport images.

The Divar XF's intuitive interface with clear, menu-driven options is quick to learn and easy to use. Choose from a selection of control devices, including a mouse or CCTV keyboard. Flexibility is also abundant with Divar XF's extensive range of advanced functionality. Other convenient features include remote playback capability and dual VGA monitor support.

Live viewing, playback, configuration, remote management — it's all simple and straightforward with the Divar XF.

Comprehensive interfaces

Flexible interface options make it easy to connect to a variety of external devices.

- Up to 16 video input and output channels
- Up to 16 audio inputs and two dual-mono audio outputs
- Optional support for up to eight H.264 IP cameras
- Dual monitor output on VGA, BNC, and Y/C outputs
- Up to 4 front-replaceable hard disks with optional RAID-4 support
- Ethernet 10/100BaseT network connection
- Up to 16 alarm inputs and 5 relay outputs
- Biphase connection allows one cable to control Bosch PTZ cameras at a range of up to 1.5 km / 0.9 miles
- Third-party PTZ control via RS422/RS485 connection (Pelco D protocol)
- Bosch IntuiKey support with loop-through function
- Bosch Video Manager support (including Keyboard Expander LTC2604/x0)
- USB connectors front and back – connect a mouse to control the user interface, or archive video to a USB memory stick or similar device
- Optional built-in DVD recorder

Applications

The Divar XF is ideal for:

- Shopping centers and retail applications
- Banks and financial institutions
- City centers and public monitoring applications
- Crowd surveillance
- Casinos and hotel complexes

Certifications and Approvals

Region	Certification	
Europe	CE	Deklaracja zgodności
		Declaration of Conformity DHR-A
		Declaration of Conformity DHR-B
USA	FCC	Declaration of Conformity DHR-A
		Declaration of Conformity DHR-B

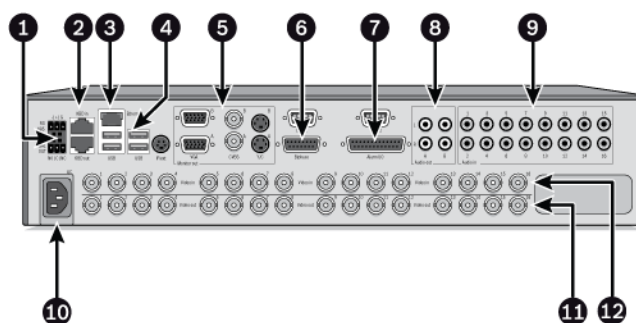
Electromagnetic compatibility

USA	FCC Part 15, Class B
EU	EMC directive 2004/108/EC
Immunity	EN50130-4
Emission	EN55022 Class B
Mains Harmonics	EN61000-3-2
Voltage fluctuations	EN61000-3-3

Safety

USA	UL60950-1
EU	EN60950-1
Can	CSA C22.2 No. 60950-1

Installation/Configuration Notes



- 1 RS485 / RS422 / Malfunction alarm
- 2 Keyboard input and looped-through output
- 3 Ethernet
- 4 USB ports
- 5 A + B monitor connections (VGA, CVBS, Y/C)
- 6 Biphase connection
- 7 Alarm inputs/outputs
- 8 Audio outputs
- 9 Audio inputs
- 10 Power input
- 11 Camera loop through
- 12 Camera video inputs

Recommended PC requirements for Control Center

Operating system	Windows XP or Vista
	DirectX 9c
Processor	Intel Pentium DualCore, 3.0 GHz or comparable
RAM memory	2048 MB or more
Free disk space	10 GB
Graphics card	NVIDIA GeForce 8600 or higher
Network interface	10/100-BaseT network interface
Operating system	Windows XP or Vista

Parts Included

Quantity	Component
1	Divar XF Hybrid Digital Recorder
2	Power supply cords
1	USB mouse
1	CD-ROM containing the software and manuals
1	Quick installation guide
1	Installation manual
1	Divar XF operation manual
1	Divar XF Control Center and Archive Player operation manual

Technical Specifications**Electrical****Rated Voltage and Power**

Power input	100 to 240 VAC; 50/60 Hz
Power consumption	Max. 2.5 to 1.0 A (250 Watt)

Video

Video standard	PAL or NTSC auto-detection
Resolution	704x576 PAL, 704x480 NTSC
Compression	H.264
Inputs	8 or 16 composite video 0.5 to 2 Vpp, 75 ohm automatic termination
Outputs	8 or 16 composite video 1 Vpp, 75 ohm, sync 0.3 V ± 10%

Audio

Inputs	8 or 16 line in, mono RCA, 1 Vpp, 10 kohm
Output	2 line out, dual mono RCA, 1 Vpp, 10 kohm
Compression	MPEG-2 layer II
Sampling rate	48 kHz per channel

Monitors

MON-A	Live, playback, menus VGA: analog RGB 1280x1024, 60/75 Hz (NTSC/PAL) CVBS: 1 Vpp, 75 ohm, BNC Y/C
MON-B	Live VGA: analog RGB 1024x768, 60/75 Hz (NTSC/PAL) CVBS: 1 Vpp, 75 ohm, BNC Y/C

Display Modes

Monitor A	Full, full sequence, quad, multi-screen (live and playback), event call-up (live)
Monitor B	Full, full sequence, quad, multi-screen, event call-up (live)
Frame rate PAL/NTSC	25/30 IPS per channel (real time)
Multiscreen mode 8 channels	1, 4, 9
Multiscreen mode 16 channels	1, 4, 9, 16
Zoom	1.5x, 2x, 3x, 5x

Alarm Handling

Inputs	Screw terminal 8 or 16 inputs configurable NO/NC, Max. input 40 VDC
Outputs	Screw terminal 4 relay outputs, configurable NO/NC, max. rated 30 VAC, 40 VDC, 0.5 A, continuous -10 VA
Remote notification	Via Control Center software

Connections

Ethernet	RJ45 modular jack 8 pins shielded: 10/100 Base-T
Biphase	Screw terminal connector (5 outputs) Maximum 5 controllable cameras per Biphase output Impedance 128 ohm, max. overvoltage protection ±40 V, max. cable length 1.5 km (0.9 miles)
Note: LTC 8785 translator needed for fixed-speed receivers/drivers	
PTZ control interface	RS485
Serial interface	RS232 output signals according to EIA/TIA-232 F, max. input voltage ±25 V 2xDB-9 male connector
Intuikey keyboard (KBD Digital or KBD Universal)	Conforms to RS485, max. signal voltage ±12 V, power supply to keyboard 11 to 12.6 VDC at max. 400 mA RJ11 modular jack 6 pins
USB	Five USB 2.0 ports

Network

Bandwidth control	0.1-100 Mbps limiter
Remote users	Maximum 5 simultaneously connected Control Center users
Protocol support	TCP/IP, DHCP, DNS, and SNTP
IP cameras	Up to 8 IP H.264 cameras (optional)
Supported IP H.264 devices	Dinion, FlexiDome, AutoDome Modular, EX series IP cameras, VIP X series encoders (running firmware 3.7 or later, max. 8 channels), and AutoDome Easy

Storage

Internal HDD	250, 500, 750 GB, or 1 TB per disk Up to 4 hard disks
Redundancy	RAID-4 (4 hard disks) (Optional, license required.) Effective storage = Smallest disk x 3

Exporting

DVD	Built-in DVD+R/RW recorder (optional)
USB	Flash memory or external HDD (FAT32)
IP	Control Center Software

Security

Password protection	Multi-level
Image authentication	All recordings and archives in native file format

Record Frame Rate

NTSC	Up to 30 IPS per channel at 352x240, 704x240 and 704x480
PAL	Up to 25 IPS per channel at 352x288, 704x288 and 704x576
IP Channels	Up to 25/30 IPS per channel at 4CIF dependent on connected IP device.

Recording

Overwrite modes	Continuous, overwrite after 1 to 99 days
Pre-alarm recording	Up to 120 s

Playback

Playback function	Fast forward/reverse, frame forward/reverse, freeze
Zoom	1.5x, 2x, 3x, 5x
Search mode	Date/time, Event (motion, input)

Mechanical

Dimensions (W x D x H) (excluding cabling)	446 x 443 x 88 mm (17.6 x 17.4 x 3.5 in)
Weight (incl. 4 hard disks)	Approx. 11 kg / 24 lbs
Rack mount kit (included)	For mounting one unit in an EIA 19" rack

Environmental

Operating temperature	+5 °C to +45 °C (+41 °F to +113 °F)
Storage temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Relative humidity	Operating: <93 % non-condensing Storage: <95 % non-condensing

Ordering Information

Divar XF 8CH 250GB 8-channel Digital Video Recorder 250 GB	DHR-0800A-025A
Divar XF 8CH 500GB 8-channel Digital Video Recorder 500 GB	DHR-0800A-050A
Divar XF 8CH 1.5TB 8-channel Digital Video Recorder 1.5 TB	DHR-0800A-150A
Divar XF 16CH 250GB 16-channel Digital Video Recorder 250 GB	DHR-1600A-025A
Divar XF 16CH 500GB 16-channel Digital Video Recorder 500 GB	DHR-1600A-050A
Divar XF 16CH 1.5TB 16-channel Digital Video Recorder 1.5 TB	DHR-1600A-150A
Divar XF 16CH 3TB 16-channel Digital Video Recorder 3 TB	DHR-1600A-300A
Divar XF INT. DVD 8CH 250GB 8-channel Digital Video Recorder 250 GB, internal DVD	DHR-0800B-025A
Divar XF INT. DVD 8CH 500GB 8-channel Digital Video Recorder 500 GB, internal DVD	DHR-0800B-050A
Divar XF INT. DVD 8CH 1.5TB 8-channel Digital Video Recorder 1.5 TB, internal DVD	DHR-0800B-150A
Divar XF INT. DVD 8CH 3TB 8-channel Digital Video Recorder 3 TB, internal DVD	DHR-0800B-300A
Divar XF INT. DVD 16CH 500GB 16-channel Digital Video Recorder 500 GB, internal DVD	DHR-1600B-050A
Divar XF INT. DVD 16CH 1.5TB 16-channel Digital Video Recorder 1.5 TB, internal DVD	DHR-1600B-150A
Divar XF INT. DVD 16CH 3TB 16-channel Digital Video Recorder 3 TB, internal DVD	DHR-1600B-300A

Ordering Information

Divar XF INT. DVD 16CH 4TB 16-channel Digital Video Recorder 4 TB, internal DVD	DHR-1600B-400A
Accessories	
LTC 2605/91 Video Manager for use with Divar all Series 1 & 2 models and System4 Multiplexer, 120/230 VAC, 50/60 Hz	LTC 2605/91
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
DHR-XS050-A 700 Series Storage Expansion 500 GB 500 GB storage expansion kit	DHR-XS050-A
DHR-XS100-A 700 Series Storage Expansion 1 TB 1 TB storage expansion kit	DHR-XS100-A
LTC 2604/50 Keyboard Port Expander Unit System4, 230 V, 50 Hz	LTC 2604/50
LTC 2604/60 Keyboard Port Expander Unit System4, 120 V, 60 Hz	LTC 2604/60
Software Options	
DHR-SIP04-A 700 Series License 4 IP 700 Series 4 IP License	DHR-SIP04-A
DHR-SIP08-A 700 Series License 8 IP 700 Series 8 IP License	DHR-SIP08-A
DHR-SRAID-A 700 Series License RAID 700 Series RAID License	DHR-SRAID-A

DiBos Micro Digital Video Recorders - Version 8 (EMEA/APR)



Features

- ▶ **Hybrid analog/IP MPEG4 digital video recorder**
- ▶ **Models for 6 and 12 analog cameras and up to 8 additional network cameras/video encoders**
- ▶ **View/record video at CIF/2CIF/4CIF resolution**
- ▶ **Web-browser remote access and viewing**
- ▶ **Camera tamper detection**
- ▶ **Control cameras and AutoDomes with Biphasic or Bilinx**
- ▶ **DVD writer for exporting video clips**
- ▶ **Interfacing to Bosch alarm panels**

DiBos Micro uses Bosch's proven state of the art digital recording and communications technology and takes video surveillance to a new level. It is an integral part of overall security solutions for a wide range of applications – including banks, large retailers, railway stations, airports, city centers, industrial facilities, and office buildings.

Customers can retrieve vital images and share information faster than ever before. They can better assess critical situations and take action immediately. Whether they're on site or at a remote network location, authorized personnel have quick, convenient access to information so they can operate more effectively and efficiently.

DiBos supports live viewing and recording at resolutions up to 4CIF. Users can store images at up to 180/150 ips (NTSC/PAL) on 12 composite video inputs. As many as 4 audio data streams can also be recorded on 12 video channels units.

Users can connect up to 8 additional IP video sources. This includes support for Bosch IP cameras (Dinion IP and AutoDome IP), Bosch MPEG4 network video encoders (VideoJet and VIP X Series), as well as JPEG images from numerous network camera manufacturers. DiBos can store up to 30/25 ips per attached network video device. Every network video encoder can add one additional audio channel. In addition to Bosch MPEG4 network encoders, DiBos can receive JPEG images from network cameras from numerous manufacturers.

The system offers advanced features for viewing and very high flexibility in recording and image access. The real power of DiBos Micro is fast, convenient accessibility to images and information. If required, accessibility to images and information is possible round the clock and everywhere all over the world. Communication and access to DiBos Micro is possible via private or public networks. For these purposes the system can be connected to a variety of peripheral devices and systems.

The unique, scalable GUI allows live and recorded images from multiple remote systems to be viewed from a single PC or another DiBos Micro. With this powerful tool, security managers can monitor and supervise various locations simultaneously.

Cameras and viewing modes can be programmed or selected manually. Each camera offers in-window pan/tilt/zoom functionality from local or remote facilities. Images are displayed with date/time, location, camera name and status of connected devices such as detectors and sensors.

DiBos Micro can be programmed to respond to specific situations and events automatically. Minimal human intervention is necessary.

In response to alarms, the system can be programmed to transmit images or messages to security personnel or security control center.

Playback is easy thanks to familiar search and navigation functions in a tree structure. Images can be accessed locally or remotely via a company network or the Internet. The customer can select multiple different views from up to 30 cameras.

Fast, powerful image search functions eliminate time-consuming manual searches. Functions include search for image changes, search for criteria such as camera number, recording date/time, and optional ATM transaction data, e. g. credit card number, bank code, account number, and/or amount withdrawn.

To ensure high security, all access is controlled by user authorization. Profiles are assigned by the system administrator. Events, such as login, logoff, status changes, image transmission, and system shutdown are stored in a database. Video authentication is built in to ensure that DiBos images are not altered in any way.

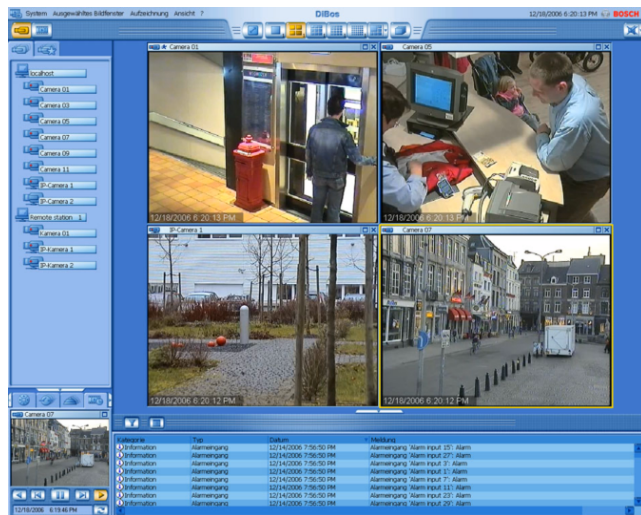
Various storage devices – such as external disk arrays, RAID and NAS devices, and external disk drives – may be used for export and backup of images.

DiBos Micro supports Bilinx for pan/tilt/zoom and camera configuration via the video coax cable.

The configuration wizard makes installation quick and easy.

DiBos Micro serial ports can be connected to Bosch alarm panels, ATM, Allegiant matrices and foyer card readers.

Live mode



Playback mode

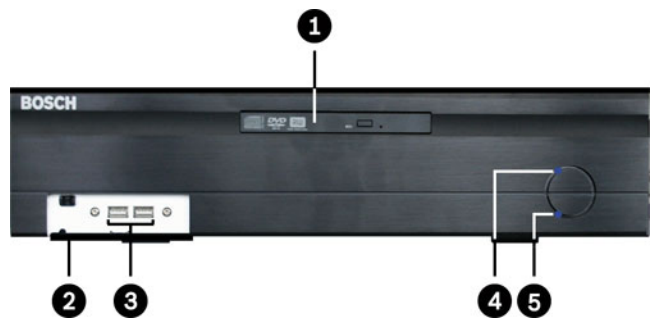


Certifications and Approvals

Region	Certification	
Europe	CE	-List
USA	FCC	-List

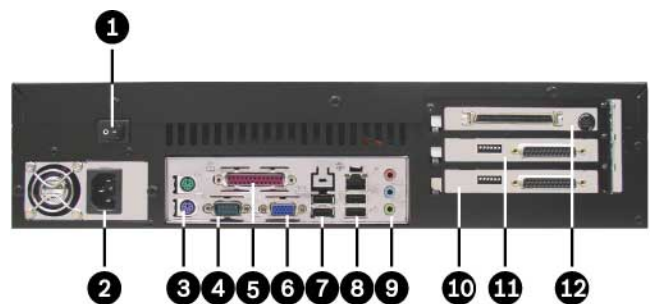
Installation/Configuration Notes

Front view:



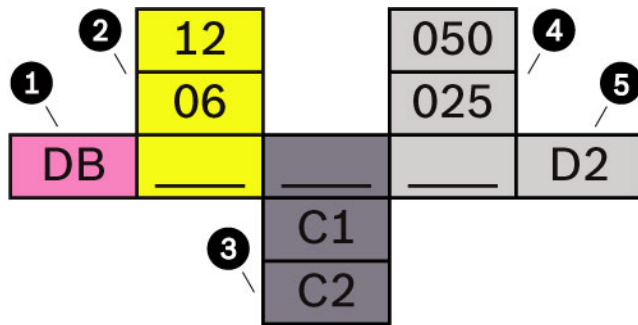
- | | |
|--|--------------------------------------|
| 1 DVD-RW | 4 Control LED: System is switched on |
| 2 Front cover
Opened by pressing once on the cover. | 5 Control LED: Hard disk access |
| 3 2x USB 2.0 | |

Rear view:



- | | |
|--|--|
| 1 On/Off switch | 7 2x USB 2.0
(e.g. for mouse and keyboard with USB connection) |
| 2 Mains connection
100/240 VAC, 50/60 Hz (automatic switchover) | 8 1x Ethernet (RJ45)
2x USB 2.0 |
| 3 Mouse (green) - Keyboard (purple). These connections should be used if the mouse and keyboard are not connected via USB. | 9 Line in (blue)
Speaker out (green)
Microphone in (red), mono |
| 4 Serial interface COM1 | 10 Grabber 2 (camera 7 - 12) |
| 5 Parallel interface. | 11 Grabber 1 (camera 1 - 6) |
| 6 VGA monitor | 12 I/O card with plug for connecting the alarm inputs and relay outputs and socket for video monitor A and video monitor B |

Ordering information:



- 1 Type DiBos Micro
- 2 Number of analog camera inputs
- 3 C1 version with max. 6 camera inputs
C2 version with max. 12 camera inputs
- 4 Disk size (x10 GB)
- 5 Version

E. g. : **DB 12 C2 025 D2**

12 channel DiBos Micro with 250 GB storage

Technical Specifications

Electrical

Compression Method	MPEG4			
Camera Inputs (analog)	1 connection cable with 6 BNC connectors (DB 06) or 2 connection cables, each with 6 BNC connectors (DB 12)			
Camera Inputs (IP)	8 video/audio MPEG4 data streams from Bosch/VCS network or JPEG devices			
Composite video signal	1 Vpp +/-3 dB (min. 0.7 Vpp, max. 1.4 Vpp), 75 Ohm			
Recording resolution (analog inputs)	PAL: 704 x 576 (4CIF), 704 x 288 Pixel (2CIF), 352 x 288 Pixel (CIF) NTSC: 704 x 480 (4CIF), 704 x 240 Pixel (2CIF), 352 x 240 Pixel (CIF)			
Recording resolution (IP inputs - Bosch IP devices)	PAL: 704 x 576 (4CIF/D1), 704 x 288 (2CIF), 464 x 576 (2/3 D1), 352 x 576 (1/2 D1), 352 x 288 (CIF), 176 x 144 (QCIF) NTSC: 704 x 480 (4CIF/D1), 704 x 240 (2CIF), 464 x 480 (2/3 D1), 352 x 480 (1/2 D1), 352 x 240 (CIF), 176 x 120 (QCIF)			
Recording rates (analog) for DiBos Micro models	IPS CIF (PAL)	IPS CIF (NTSC)	IPS 2CIF (PAL)	IPS 2CIF (NTSC)
DB 06 C1 xxx D2	75	90	50	60
DB 12 C2 xxx D2	150	180	100	120
Recording rates (analog) for DiBos Micro models	IPS 4CIF (PAL)	IPS 4CIF (NTSC)		
DB 06 C1 xxx D2	25	30		
DB 12 C2 xxx D2	50	60		

Recording rates per channel (video inputs analog)	PAL: 0,5; 1; 2; 3; 4; 5; 6; 8; 12,5; 25 ips NTSC: 0,5; 1; 2; 3; 5; 6; 7,5; 10; 15; 30 ips
Image size (video inputs analog)	Configurable from approx. 1.5 kB to 30 kB
Maximum recording rate (analog and IP)	50 Mbit per second
Recording rates per channel (video inputs IP)	PAL: 0,5; 1; 2; 3; 4; 5; 6; 8; 12,5; 25 ips NTSC: 0,5; 1; 2; 3; 5; 6; 7,5; 10; 15; 30 ips
Image size (video inputs IP)	Configurable bit streams up to 3 MBit per camera
Supported single channel encoders Bosch VideoJet Series and Bosch VIP Series	VideoJet 10S, VideoJet 1000 VideoJet X10 VIP X1, VIP 10
Supported multi channel encoders Bosch VideoJet Series and Bosch VIP Series	VideoJet 8004, VideoJet 8004A VideoJet 8008, VideoJet 8008A VideoJet X20, VideoJet X40 VIP X2, VIP X2A, VIP X1600
Supported Bosch IP cameras	Dinion IP, AutoDome IP, FlexiDome IP, Megapixel IP
JPEG protocol	JPEG image request via HTTP
Supported JPEG cameras from other manufacturers	IP cameras from Axis, Sony and Mobotix. For further information please contact Bosch Security Systems
Audio Inputs	2 (DB 06) or 4 (DB 12), cinch connector, line in signal, 16 KHz sampling rate
Audio Outputs	1, line out signal, 1/8" mini-plug (3,5 mm)
Alarm Inputs (NO / NC)	12 Switching voltage (high): >2 VDC Switching voltage (low): <0,5 VDC Input voltage: max. 40 VDC Impedance: 22 kOhm pull up (+5 V)
Malfunction relay output	1 Voltage range: 30 VAC - 40 VDC Switching current: max. 500 mA AC or DC Switching power: max. 10 VA
Relay Outputs (NO / NC)	12 Voltage range: 30 VAC - 40 VDC Switching current: max. 500 mA AC or DC Switching power: max. 10 VA
Spot monitor output	2 CVBS outputs for full screen or sequences from connected analog cameras
Bilinx control	For AutoDome control and Dinion camera configuration via coax
PTZ control	Bilinx: Via coax cable, up to 12 AutoDome units. Biphase: Up to 12 AutoDome units. RS 232: Via Console Port of any Allegiant matrix.
Storage capacity (internal hard disk)	250 GB, 500 GB (8 GB are needed for the operating system and video system software)
Video output	1x VGA
Ethernet	10/100/1000 Base-T, bandwidth-limited
CPU	Intel Celeron(min. 2,8 GHz)
RAM	512 MB

RS 232	1 (to connect Bosch alarm panels and Allegiant matrices)
USB 2.0	6
DVD writer	Included; supported medias: CD-R, CD-RW, DVD-R
Power supply	100 / 240 VAC, 50 / 60 Hz (auto switch)
Typical power consumption	approx. 120 W
Power consumption	max. 140 W
Operating system	Microsoft Windows XP Embedded
Web Browser	Microsoft Internet Explorer 6 or higher, on Windows 2000 or Windows XP
Export of video/audio data	DiBos-format or ASF-format on CD/DVD writer, USB-device or network drive
Image Printer	via USB (with Windows XP drivers)
External storage capacity	max. 16 TB

Supported protocols

	Panasonic, Pelco (D protocol), JVC, SAE	Bosch (Bilix, Biphas, Allegiant)	Geutebrueck Lederer
Pan / tilt / zoom	Yes	Yes	Yes
Focus / Iris	Yes	Yes	Yes
Prepositions	Yes	Yes	Yes
AUX commands	No	Yes	No
Extended commands, e.g. wiper on	No	No	Yes

Mechanical facilities

Dimensions (H x W x D)	11.5 x 48.0 x 43 cm (4.5 x 19 x 16.9 inch), also in 19 inch rack mountable
Weight	Approx. 11.5 kg (25 lb), dependent on model

Environmental conditions

Operating temperature	+5 °C to +40 °C (41 °F to 104 °F)
Storage temperature	-10 °C to +60 °C (-14 °F to 140 °F)
Relative humidity in operation	15% to 80%, no condensation
Relative humidity when stored	8% to 80%, no condensation

Electromagnetic Compatibility (EMC)

• USA	FCC Part 15, Class B
• EU	EMC Directive 89/336/EEC Interference immunity: Conformance with EN 50130-4 requires an external UPS. The product is tested according to EN 50130-4, with the exception of voltage interruption to EN 50130-4:1995 Chapter 3/8/04. To comply with EN 50130-4, an external UPS is required. The UPS (Pulsar ellipse 500) is not included in the product and must be ordered separately. The UPS should be dimensioned for at least 480 VA. Interference emission: EN 55022, Class B Mains power fluctuations: EN 61000-3-2 Voltage fluctuations: EN 61000-3-3

Safety

• USA	UL60950 Third edition (2000) CAN/CSA 22.2 No.60950-00, Third edition (2000)
• EU	EN 60950: 2000
Warranty	3 years
Approved anti virus software	Norton Anti Virus McAfee Virus Scan Trend Micro

Minimum requirements for computer with DiBos Receiver Software/IP Recorder Software (in brackets recommended requirements)

Operating system	Windows XP Professional, 32-bit versions; Windows Vista, 32-bit versions
CPU	Pentium 4, 3 GHz with Hyper Threading, (Core 2 Duo CPU)
RAM	1024 MB (2048 MB)
VGA card	32-Bit color depth (DirectX 9 Hardware Support, no shared memory)
Recording partition	Dedicated partition for recording
Network adapter	1000 Base-T, Gbit

Windows 2000, Windows XP and Windows Vista are registered trademarks of Microsoft Corporation.

Intel Pentium and Celeron are registered trademarks of Intel Corporation.

Ordering Information	
Accessories	
DB EK 012 CS English Keyboard and Czech Manuals (only EMEA)	DBEK012CS
DB EK 012 DA English Keyboard and Danish Manuals (only EMEA)	DBEK012DA
DB EK 012 DE German Keyboard and German Manuals (only EMEA)	DBEK012DE
DB EK 012 EL English Keyboard and Greek Manuals (only EMEA)	DBEK012EL
DB EK 012 EN English Keyboard and English Manuals	DBEK012EN
DB EK 012 ES English Keyboard and Spanish Manuals (only EMEA)	DBEK012ES
DB EK 012 FI English Keyboard and Finnish Manuals (only EMEA)	DBEK012FI
DB EK 012 FR French Keyboard and French Manuals (only EMEA)	DBEK012FR
DB EK 012 HU English Keyboard and Hungarian Manuals (only EMEA)	DBEK012HU
DB EK 012 IT English Keyboard and Italian Manuals (only EMEA)	DBEK012IT
DB EK 012 NL English Keyboard and Dutch Manuals (only EMEA)	DBEK012NL
DB EK 012 NO English Keyboard and Norwegian Manuals (only EMEA)	DBEK012NO
DB EK 012 PL English Keyboard and Polish Manuals (only EMEA)	DBEK012PL
DB EK 012 PT English Keyboard and Portuguese Manuals (only EMEA)	DBEK012PT
DB EK 012 RU English Keyboard and Russian Manuals (only EMEA)	DBEK012RU
DB EK 012 SV Swedish Keyboard and Swedish Manuals (only EMEA)	DBEK012SV
DB EK 012 TR English Keyboard and Turkish Manuals (only EMEA)	DBEK012TR
DB EK 021 SCSI Card Adapter and SCSI Cable Built in the factory. Included SCSI cable. DiBos Micro: Only for DB 06, due to required PCI slot. DiBos 19 inch: Not for DB 30 C5 100 R2 and DB 30 C5 160 R2, due to required PCI slot.	DBEK021
DB EK 061 SCSI Card Adapter and SCSI Cable Expansion. Included SCSI cable. DiBos Micro: Only for DB 06, due to required PCI slot.	DBEK061
DB EK 831 OVS Interface Converter OVS RS 485/RS 232 interface converter.	DBEK831OVS

Ordering Information	
Software Options	
DB SE 016 DiBos ATM POS Bridge License Software interface via TCP/IP to Bosch ATM/POS bridge.	DBSE016
DB SE 017 DiBos IP Software License Software interface via TCP/IP socket connection to IP server providing POS, ATM or other data.	DBSE017
DB SR 002-B DiBos 8 Receiver SW Burning License	DBSR002-B

DiBos 19 inch Digital Video Recorders - Version 8 (EMEA/APR)



Features

- ▶ **Hybrid analog/IP MPEG4 digital video recorder**
- ▶ **Models for 6, 12, 18, 24 and 30 analog cameras and up to 32 additional network cameras/video encoders**
- ▶ **View/record video at CIF/2CIF/4CIF resolution**
- ▶ **Web-browser remote access and viewing**
- ▶ **Camera tamper detection**
- ▶ **Control cameras and AutoDomes with Biphase or Bilinx**
- ▶ **DVD writer for exporting video clips**
- ▶ **Interfacing to Bosch alarm panels**
- ▶ **Remote Receiver Software included**

DiBos uses Bosch's proven state of the art digital recording and communications technology and takes video surveillance to a new level. It is an integral part of overall security solutions for a wide range of applications – including banks, large retailers, railway stations, airports, city centers, industrial facilities, and office buildings.

Customers can retrieve vital images and share information faster than ever before. They can better assess critical situations and take action immediately. Whether they're on site or at a remote network location, authorized personnel have quick, convenient access to information so they can operate more effectively and efficiently.

DiBos supports live viewing and recording at resolutions up to 4CIF. Users can store images at up to 450/375 ips (NTSC/PAL) on 30 composite video inputs. As many as 10 audio data streams can also be recorded on 30 video channels units.

Users can connect up to 32 additional IP video sources. This includes support for Bosch IP cameras (Dinion IP and AutoDome IP), Bosch MPEG4 network video encoders (VideoJet and VIP X Series), as well as JPEG images from numerous network camera manufacturers. DiBos can store up to 30/25 ips per attached network video device.

The system offers advanced features for viewing and very high flexibility in recording and image access. The real power of DiBos is fast, convenient accessibility to images and information. If required, accessibility to images and information is possible round the clock and everywhere all over the world. Communication and access to DiBos is possible via private or public networks. For these purposes the system can be connected to a variety of peripheral devices and systems.

The unique, scalable GUI allows live and recorded images from multiple remote systems to be viewed from a single PC or another DiBos. With this powerful tool, security managers can monitor and supervise various locations simultaneously.

Cameras and viewing modes can be programmed or selected manually. Each camera offers in-window pan/tilt/zoom functionality from local or remote facilities. Images are displayed with date/time, location, camera name and status of connected devices such as detectors and sensors.

DiBos can be programmed to respond to specific situations and events automatically. Minimal human intervention is necessary.

In response to alarms, the system can be programmed to transmit images or messages to security personnel or security control center.

Playback is easy thanks to familiar search and navigation functions in a tree structure. Images can be accessed locally or remotely via a company network or the Internet. The customer can select multiple different views from up to 30 cameras.

Fast, powerful image search functions eliminate time-consuming manual searches. Functions include search for image changes, search for criteria such as camera number, recording date/time, and optional ATM transaction data, e. g. credit card number, bank code, account number, and/or amount withdrawn.

To ensure high security, all access is controlled by user authorization. Profiles are assigned by the system administrator. Events, such as login, logoff, status changes, image transmission, and system shutdown are stored in a database. Video authentication is built in to ensure that DiBos images are not altered in any way.

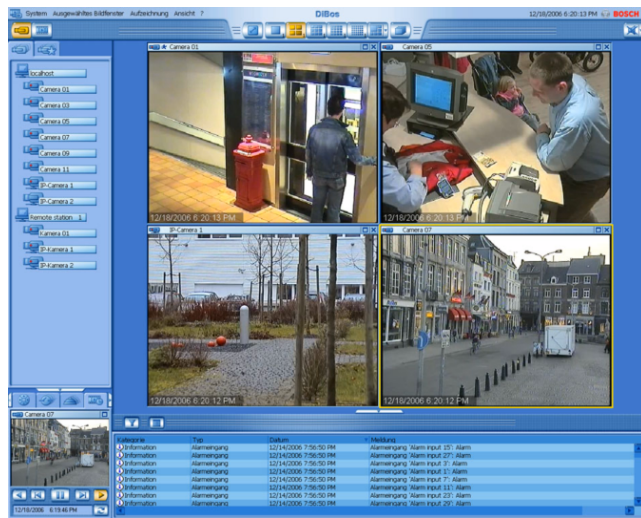
Various storage devices – such as external disk arrays, RAID and NAS devices, and external disk drives – may be used for export and backup of images.

DiBos supports Bilinx for pan/tilt/zoom and camera configuration via the video coax cable.

The configuration wizard makes installation quick and easy.

DiBoS serial ports can be connected to Bosch alarm panels, ATM, Allegiant matrices and foyer card readers.

Live mode



Playback mode

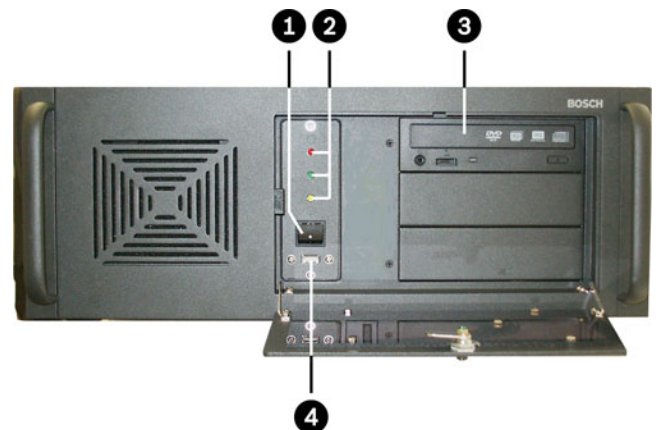


Certifications and Approvals

Region	Certification
Europe	CE -List
USA	FCC -List

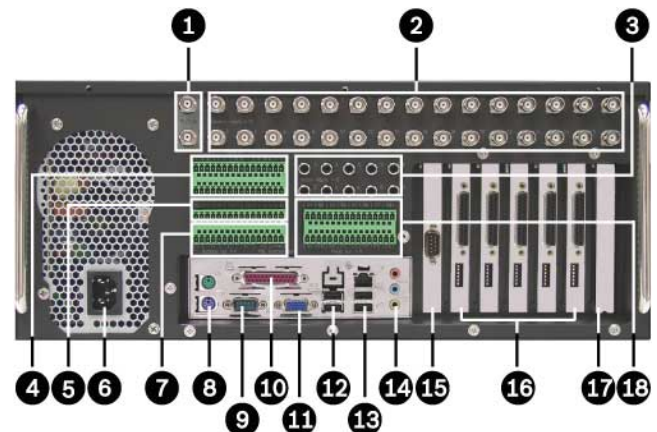
Installation/Configuration Notes

Front view:



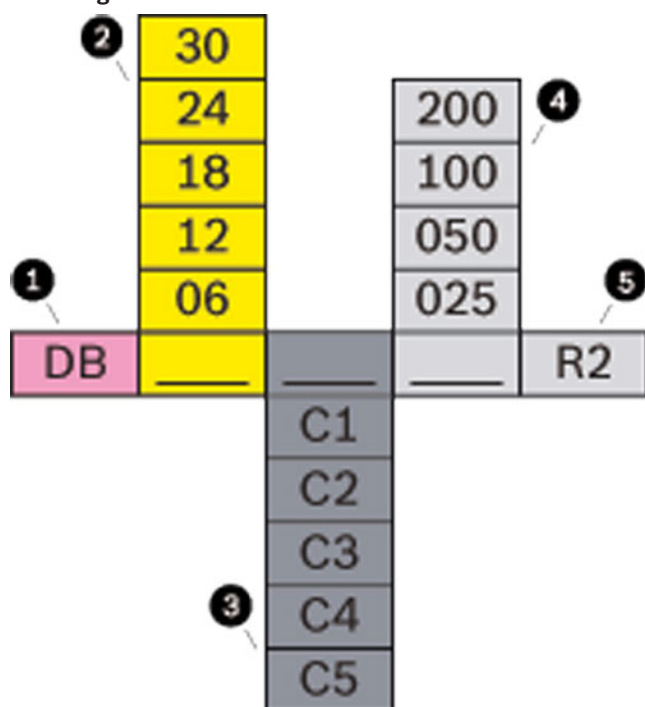
- | | |
|-------------------------------|-----------|
| 1 On/Off switch | 3 DVD-RW |
| 2 Control LEDs: | 4 USB 2.0 |
| Red = hard disk access | |
| Green = system is switched on | |
| Yellow = unused | |

Rear view:



- | | |
|--|--|
| 1 Video monitor A/Video monitor B | 10 Parallel interface. |
| 2 Video inputs 1 - 30 | 11 VGA monitor |
| 3 Audio inputs 1 - 10 | 12 2x USB 2.0 (e.g. for mouse and key-board with USB connection) |
| 4 Alarm inputs 1 - 21 | 13 1x Ethernet (RJ45) 2x USB 2.0 |
| 5 Alarm inputs 22 - 32 | 14 Line in (blue) Speaker out (green) Microphone in (red), mono |
| 6 Mains connection 100/240 VAC, 50/60 Hz (automatic switchover) | 15 Second serial interface (COM2) |
| 7 Biphas 1 - 4, malfunction outputs 1 | 16 Grabbers 1 - 5 |
| 8 Mouse (green) - Keyboard (purple). These connections should be used if the mouse and keyboard are not connected via USB. | 17 Free for optional PCI plug-in cards |
| 9 Serial interface COM1 | 18 Relay outputs 1 - 16 |

Ordering information:



- 1 Type DiBos
- 2 Number of analog camera inputs
- 3 C1 version with max. 6 camera inputs
C2 version with max. 12 camera inputs
C3 version with max. 18 camera inputs
C4 version with max. 24 camera inputs
C5 version with max. 30 camera inputs
- 4 Disk size (x10 GB)
- 5 Version
R: Rack mount

E. g. : **DB 30 C5 200 R2**

30 channel DiBos with 2 TB storage

Technical Specifications

Electrical

Compression Method	MPEG4
Camera Inputs (analog)	6 BNC connectors (DB 06 C1) 12 BNC connectors (DB 12 C2) 18 BNC connectors (DB 18 C3) 24 BNC connectors (DB 24 C4) 30 BNC connectors (DB 30 C5)
Camera Inputs (IP)	16 video/audio MPEG4 data streams from Bosch/VCS network or JPEG devices (DB 06 C1, DB 12 C2, DB 18 C3) 32 video/audio MPEG4 data streams from Bosch/VCS network or JPEG devices (DB 24 C4, DB 30 C5)
Composite video signal	1 Vpp +/- 3 dB (min. 0.7 Vpp, max. 1.4 Vpp), 75 Ohm
Video outputs (loop through)	Via breakout cable

Recording resolution (analog inputs)	PAL: 704 x 576 (4CIF), 704 x 288 Pixel (2CIF), 352 x 288 Pixel (CIF) NTSC: 704 x 480 (4CIF), 704 x 240 Pixel (2CIF), 352 x 240 Pixel (CIF)
Recording resolution (IP inputs - Bosch IP devices)	PAL: 704 x 576 (4CIF/D1), 704 x 288 (2CIF), 464 x 576 (2/3 D1), 352 x 576 (1/2 D1), 352 x 288 (CIF), 176 x 144 (QCIF) NTSC: 704 x 480 (4CIF/D1), 704 x 240 (2CIF), 464 x 480 (2/3 D1), 352 x 480 (1/2 D1), 352 x 240 (CIF), 176 x 120 (QCIF)
Recording rates (analog) for DiBos models	IPS IPS IPS IPS CIF CIF 2CIF 2CIF (PAL) (NTSC) (PAL) (NTSC)
DB 06 C1 xxx R2	75 90 50 60
DB 12 C2 xxx R2	150 180 100 120
DB 18 C3 xxx R2	225 270 150 180
DB 24 C4 xxx (S) R2	300 360 200 240
DB 30 C5 xxx (S) R2	375 450 250 300
Recording rates (analog) for DiBos models	IPS IPS 4CIF 4CIF (PAL) (NTSC)
DB 06 C1 xxx R2	25 30
DB 12 C2 xxx R2	50 60
DB 18 C3 xxx R2	75 90
DB 24 C4 xxx (S) R2	100 120
DB 30 C5 xxx (S) R2	125 150
Recording rates per channel (video inputs analog)	PAL: 0,5; 1; 2; 3; 4; 5; 6; 8; 12,5; 25 ips NTSC: 0,5; 1; 2; 3; 5; 6; 7,5; 10; 15; 30 ips
Image size (video inputs analog)	Configurable from approx. 1.5 kB to 30 kB
Maximum recording rate (analog and IP)	50 Mbit per second
Recording rates per channel (video inputs IP)	PAL: 0,5; 1; 2; 3; 4; 5; 6; 8; 12,5; 25 ips NTSC: 0,5; 1; 2; 3; 5; 6; 7,5; 10; 15; 30 ips
Image size (video inputs IP)	Configurable bit streams up to 3 MBit per camera
Supported single channel encoders Bosch VideoJet Series and Bosch VIP Series	VideoJet 10S, VideoJet 1000 VideoJet X10 VIP X1, VIP 10
Supported multi channel encoders Bosch VideoJet Series and Bosch VIP Series	VideoJet 8004, VideoJet 8004A VideoJet 8008, VideoJet 8008A VideoJet X20, VideoJet X40 VIP X2, VIP X2A, VIP X1600
Supported Bosch IP cameras	DiNion IP, AutoDome IP, FlexiDome IP, Megapixel IP
JPEG protocol	JPEG image request via HTTP
Supported JPEG cameras from other manufacturers	IP cameras from Axis, Sony and Mobotix. For further information please contact Bosch Security Systems
Audio Inputs	2, 4, 6, 8, 10, cinch connector, line in signal, 16 KHz sampling rate

Audio Outputs	1, line out signal, 1/8" mini-plug (3,5 mm)
Alarm Inputs (NO / NC)	32 Switching voltage (high): >2 VDC Switching voltage (low): <0,5 VDC Input voltage: max. 40 VDC Impedance: 22 kOhm pull up (+5 V)
Malfunction relay output	1 Voltage range: 30 VAC - 40 VDC Switching current: max. 500 mA AC or DC Switching power: max. 10 VA
Relay Outputs (NO / NC)	16 Voltage range: 30 VAC - 40 VDC Switching current: max. 500 mA AC or DC Switching power: max. 10 VA
Spot monitor output	2 CVBS outputs for full screen or sequences from connected analog cameras
Bilinx control	For AutoDome control and Dinion camera configuration via coax
PTZ control	Bilinx: Via coax cable, up to 30 AutoDome units. Biphase: Up to 16 AutoDome units. RS 232: Via Console Port of any Allegiant matrix.
Storage capacity (internal hard disk)	250 GB, 500 GB, 1 TB, 2 TB (8 GB are needed for the operating system and video system software)
Video output	1x VGA
Ethernet	10/100/1000Base-T, bandwidth-limited
CPU	Intel P4 (min. 3 GHz)
RAM	1024 MB
RS 232	2 (to connect Bosch alarm panels and Allegiant matrices)
USB 2.0	5
DVD writer	Included; supported medias: CD-R, CD-RW, DVD-R
Power supply	100 / 240 VAC, 50 / 60 Hz (auto switch)
Typical power consumption	approx. 150 W
Power consumption	max. 210 W
Operating system	Microsoft Windows XP Embedded
Web Browser	Microsoft Internet Explorer 6 or higher, on Windows 2000 or Windows XP
Export of video/audio data	DiBos-format or ASF-format on DVD-R/DVD+R, USB-device or network drive
Image Printer	via USB (with Windows XP drivers)
External storage capacity	max. 16 TB

Supported protocols

	Panasonic, Pelco (D protocol), JVC, SAE	Bosch (Bilinx, Biphase, Allegiant)	Geutebrueck Lederer
Pan / tilt / zoom	Yes	Yes	Yes
Focus / Iris	Yes	Yes	Yes
Prepositions	Yes	Yes	Yes
AUX commands	No	Yes	No
Extended commands, e.g. wiper on	No	No	Yes

Mechanical facilities

Dimensions (H x W x D)	17,5 x 48,0 x 54,5 cm (7 x 19 x 21.5 inch)
Weight	16 - 20.4 kg (25 - 55 lb), dependent on model

Environmental conditions

Operating temperature	+5 °C to +40 °C (41 ° to 104 °F)
Storage temperature	-10 °C to +60 °C (-14 °F to 140 °F)
Relative humidity in operation	15% to 80%, no condensation
Relative humidity when stored	8% to 80%, no condensation

Electromagnetic Compatibility (EMC)

• USA	FCC Part 15, Class A
• EU	EMC Directive 89/336/EEC Interference immunity: Conformance with EN 50130-4 requires an external UPS. The product is tested according to EN 50130-4, with the exception of voltage interruption to EN 50130-4:1995 Chapter 3/8/04. To comply with EN 50130-4, an external UPS is required. The UPS (Pulsar ellipse 500) is not contained in the product and must be ordered separately. The UPS should be dimensioned for at least 480 VA. Interference emission: EN 55022, Class B Mains power fluctuations: EN 61000-3-2 Voltage fluctuations: EN 61000-3-3

Safety

• USA	UL60950 Third edition (2000) CAN/CSA 22.2 No.60950-00, Third edition (2000)
• EU	EN 60950: 2000

Warranty 3 years

Approved anti virus software Norton Anti Virus
McAfee Virus Scan
Trend Micro

Minimum requirements for computer with DiBos Receiver Software/IP Recorder Software (in brackets recommended requirements)

Operating system	Windows XP Professional, 32-bit versions; Windows Vista, 32-bit versions
CPU	Pentium 4, 3 GHz with Hyper Threading, (Core 2 Duo CPU)
RAM	1024 MB (2048 MB)
VGA card	32-Bit color depth (DirectX 9 Hardware Support, no shared memory)
Recording partition	Dedicated partition for recording
Network adapter	1000 Base-T, Gbit

Windows 2000, Windows XP and Windows Vista are registered trademarks of Microsoft Corporation.

Intel Pentium and Celeron are registered trademarks of Intel Corporation.

Ordering Information

DB 06 C1 050 R2 DiBos Digital Video Recorder 6 channel DiBos with 500 GB HDD, DVD-RW, 8 IP devices.	DB06C1050R2
DB 06 C1 100 R2 DiBos Digital Video Recorder 6 channel DiBos with 1 TB HDD, DVD-RW, 16 IP devices.	DB06C1100R2
DB 12 C2 050 R2 DiBos Digital Video Recorder 12 channel DiBos with 500 GB HDD, DVD-RW, 8 IP devices.	DB12C2050R2
DB 12 C2 100 R2 DiBos Digital Video Recorder 12 channel DiBos with 1 TB HDD, DVD-RW, 16 IP devices.	DB12C2100R2
DB 12 C2 200 R2 DiBos Digital Video Recorder 12 channel DiBos with 2 TB HDD, DVD-RW, 16 IP devices.	DB12C2200R2
DB 18 C3 025 R2 DiBos Digital Video Recorder 18 channel DiBos with 250 GB HDD, DVD-RW, 16 IP devices.	DB18C3025R2
DB 18 C3 050 R2 DiBos Digital Video Recorder 18 channel DiBos with 500 GB HDD, DVD-RW, 16 IP devices.	DB18C3050R2
DB 18 C3 100 R2 DiBos Digital Video Recorder 18 channel DiBos with 1 TB HDD, DVD-RW, 16 IP devices.	DB18C3100R2
DB 18 C3 200 R2 DiBos Digital Video Recorder 18 channel DiBos with 2 TB HDD, DVD-RW, 16 IP devices.	DB18C3200R2
DB 24 C4 025 R2 DiBos Digital Video Recorder 24 channel DiBos with 250 GB HDD, DVD-RW, 32 IP devices.	DB24C4025R2
DB 24 C4 050 R2 DiBos Digital Video Recorder 24 channel DiBos with 500 GB HDD, DVD-RW, 32 IP devices.	DB24C4050R2
DB 24 C4 100 R2 DiBos Digital Video Recorder 24 channel DiBos with 1 TB HDD, DVD-RW, 32 IP devices.	DB24C4100R2
DB 24 C4 200 R2 DiBos Digital Video Recorder 24 channel DiBos with 2 TB HDD, DVD-RW, 32 IP devices.	DB24C4200R2
DB 30 C5 025 R2 DiBos Digital Video Recorder 30 channel DiBos with 250 GB HDD, DVD-RW, 32 IP devices.	DB30C5025R2

Ordering Information

DB 30 C5 050 R2 DiBos Digital Video Recorder 30 channel DiBos with 500 GB HDD, DVD-RW, 32 IP devices.	DB30C5050R2
DB 30 C5 100 R2 DiBos Digital Video Recorder 30 channel DiBos with 1 TB HDD, DVD-RW, 32 IP devices.	DB30C5100R2
DB 30 C5 200 R2 DiBos Digital Video Recorder 30 channel DiBos with 2 TB HDD, DVD-RW, 32 IP devices.	DB30C5200R2
Accessories	
DB EK 012 CS English Keyboard and Czech Manuals (only EMEA)	DBEK012CS
DB EK 012 DA English Keyboard and Danish Manuals (only EMEA)	DBEK012DA
DB EK 012 DE German Keyboard and German Manuals (only EMEA)	DBEK012DE
DB EK 012 EL English Keyboard and Greek Manuals (only EMEA)	DBEK012EL
DB EK 012 EN English Keyboard and English Manuals	DBEK012EN
DB EK 012 ES English Keyboard and Spanish Manuals (only EMEA)	DBEK012ES
DB EK 012 FI English Keyboard and Finnish Manuals (only EMEA)	DBEK012FI
DB EK 012 FR French Keyboard and French Manuals (only EMEA)	DBEK012FR
DB EK 012 HU English Keyboard and Hungarian Manuals (only EMEA)	DBEK012HU
DB EK 012 IT English Keyboard and Italian Manuals (only EMEA)	DBEK012IT
DB EK 012 NL English Keyboard and Dutch Manuals (only EMEA)	DBEK012NL
DB EK 012 NO English Keyboard and Norwegian Manuals (only EMEA)	DBEK012NO
DB EK 012 PL English Keyboard and Polish Manuals (only EMEA)	DBEK012PL
DB EK 012 PT English Keyboard and Portuguese Manuals (only EMEA)	DBEK012PT
DB EK 012 RU English Keyboard and Russian Manuals (only EMEA)	DBEK012RU
DB EK 012 SV Swedish Keyboard and Swedish Manuals (only EMEA)	DBEK012SV
DB EK 012 TR English Keyboard and Turkish Manuals (only EMEA)	DBEK012TR
DB EK 021 SCSI Card Adapter and SCSI Cable Built in the factory. Included SCSI cable. DiBos Micro: Only for DB 06, due to required PCI slot. DiBos 19 inch: Not for DB 30 C5 100 R2 and DB 30 C5 160 R2, due to required PCI slot.	DBEK021

Ordering Information**DB EK 061 SCSI Card Adapter and SCSI Cable** **DBEK061**

Expansion. Included SCSI cable. DiBos Micro: Only for DB 06, due to required PCI slot.

DB EK 831 OVS Interface Converter OVS **DBEK831OVS**

RS 485/RS 232 interface converter.

DB EK 031 Internal Modem Card (only EMEA) **DBEK031**

PCI modem card (not DB 30 C5 100 and DB 30 C5 160).

Software Options**DB SE 016 DiBos ATM POS Bridge License** **DBSE016**

Software interface via TCP/IP to Bosch ATM/POS bridge.

DB SE 017 DiBos IP Software License **DBSE017**

Software interface via TCP/IP socket connection to IP server providing POS, ATM or other data.

DB SR 002-B DiBos 8 Receiver SW Burning License **DBSR002-B**

700 Series Hybrid/ Network Recorder



Features

- ▶ **Real-time H.264 recording and playback in genuine 4CIF resolution for up to 32 cameras simultaneously**
- ▶ **Hybrid models offer up to 16 analog and 16 IP camera channels; IP-only models offer up to 32 IP camera channels**
- ▶ **Fully automated assignment and management of H.264 IP cameras**
- ▶ **Internal storage up to 8 TB on four front-accessible hard drives with optional on-board RAID-4 support**
- ▶ **Text support for storage and retrieval of video, synchronized to external data like ATM/POS data, license plate numbers, or GPS data**

The Bosch 700 Series Hybrid and Network Recorders offer top-of-the-line performance and adaptability. Equipped with four front-replaceable hard drives and extensive integration features, the 700 Series is ideal for medium to large-scale systems. 700 Series' superior image quality and compression gets the most out of CCTV images. Available in both IP-only and hybrid models, the 700 Series can handle even the most challenging CCTV applications without excessive demands from installers and operators.

Functions

High performance H.264

With real-time viewing, recording, and playback in genuine 4CIF resolution, 700 Series Recorders capture all the details. More detail typically means increased bandwidth, larger storage requirements, and increased costs – but not with the 700 Series. Bosch's advanced H.264 compression technology used in the 700 Series reduces bandwidth and storage needs by up to 30% or more, compared to traditional MPEG-4 systems.

Embedded design

The embedded design of the 700 Series Recorder offers a higher level of security against network attacks than traditional systems and has lower maintenance requirements. The security of recordings remains high while eliminating the need to install software patches and anti-virus updates. The integrated architecture, built-in installation wizards, and low-maintenance design make the 700 Series easy to set up and operate while delivering a lower total cost of ownership.

Hybrid Models

The world of CCTV is changing – IP is replacing the analog standard in many areas. Bosch's 700 Series Recorders have the flexibility to adapt to this changing environment.

The 700 Series Hybrid Recorder is the ideal choice for growing applications which use a mix of analog and IP cameras. It can record 8 or 16 analog cameras and an additional 8 or 16 IP channels, all with real-time frame rates at 4CIF resolution.

Network Models

The 700 Series Network Recorder is the perfect match for pure IP environments. While typical IP solutions consist of many separate components – NVR Server, PC Client, external RAID storage array and software – the 700 Series Network Recorder is an all-in-one IP video management solution.

With support for a total of 32 H.264 cameras and a fully automated, onboard IP camera management system, 700 Series is straight forward to set up and maintain right out-of-the-box.

Power to integrate

Bosch's VideoSDK provides a complete toolbox of modules for playback, searching, viewing live images, and more – simplifying integration with other surveillance systems. The VideoSDK even allows integration with specialized software tools such as fraud detection programs for retail applications.

Control of 700 Series Recorders can be automated using CLI (Command Language Interface) commands. This allows the 700 Series to be interfaced with external software (over RS232 or IP), which is typically used to sense alarms or handle access control on an existing (embedded) computer system. Functions include front panel emulation, configuration, and viewing status information. For instructions on how to use the CLI, please refer to the documentation on the Bosch Security Systems website.

Record text data together with associated video (e.g. from an ATM machine, license plate reader, or cash register) using the text support feature. Searching text data allows fast retrieval of the associated video and provides legal evidence in the event of fraud.

Flexible and reliable storage

Access the four internal hard drives via the front without opening the unit, thus simplifying service and making it easy to add additional storage on-site when needed. Configure the disks as a RAID 4 array for extra reliability.

Expand storage further with an external Bosch iSCSI video storage array. This makes the 700 Series ideal for applications requiring continuous recording at the highest resolution, frame rate, and retention time.

Ease of use

Find key events in recorded video quickly by utilizing the unit's smart search to find changes only in selected areas. Compare past and present events by simultaneously viewing live images with playback scenes.

Export recordings by simply downloading them to a USB memory device, burning them to the optional built-in DVD recorder, or exporting them remotely via the Control Center software. The 700 Series makes it easy to manage and transport images. All video is digitally watermarked to ensure the credibility of recordings.

The unit's intuitive interface with clear, menu-driven options is quick to learn and easy to use. Choose from a selection of control devices, including a mouse or CCTV keyboard. With the keyboard loop-through feature, up to sixteen 700 Series Recorders can be controlled from a single IntuiKey keyboard.

Flexibility is also abundant with its extensive range of advanced functionality. Other convenient features include remote playback capability and dual VGA monitor support. Live viewing, playback, configuration, remote management — it is all simple and straightforward with the 700 Series.

Comprehensive interfaces

Flexible interface options make it easy to connect to a variety of external devices.

- Up to 16 analog video inputs and 16 IP camera inputs on hybrid models, or up to 32 IP camera inputs on IP-only models
- Up to 16 audio inputs (DHR Models only) and two dual-mono audio outputs
- One or two monitor (DHR models only) outputs on VGA, CVBS, and Y/C outputs
- Up to 4 front-replaceable hard disks with optional RAID-4 support
- One or two Ethernet 10/100/1000 BaseT network connections
- Up to 16 alarm inputs and 5 relay outputs
- Biphase connection allows one cable to control Bosch PTZ cameras at a range of up to 1.5 km / 0.9 miles
- Third-party PTZ control via RS422/RS485 connection (Pelco D protocol)
- Bosch IntuiKey support with loop-through function
- Bosch Video Manager support (including Keyboard Expander LTC2604/x0)
- USB connectors front and back — connect a mouse to control the user interface, or archive video to a USB memory stick or similar device
- Optional built-in DVD recorder
- Text support for storage and retrieval of video synchronized to external data like ATM/POS data, License plate numbers, or GPS data

Applications

The 700 Series Recorder is ideal for:

- Shopping centers and retail applications
- Banks and financial institutions
- City centers and public monitoring applications
- Crowd surveillance
- Casinos and hotel complexes

Certifications and Approvals

Region	Certification
Europe	CE
	Declaration of Conformity DNR models Declaration of Conformity DHR models
USA	FCC
	Declaration of Conformity DNR models Declaration of Conformity DHR models

Electromagnetic compatibility

USA	FCC Part 15, Class B
EU	EMC directive 2004/108/EC
Immunity	EN50130-4
Emission	EN55022 Class B
Mains Harmonics	EN61000-3-2
Voltage fluctuations	EN61000-3-3
Alarm standard	EN50130-5:1998

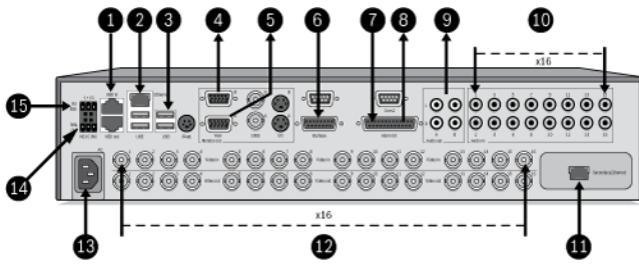
Safety

USA	UL60950-1
EU	EN60950-1
Can	CSA C22.2 No. 60950-1

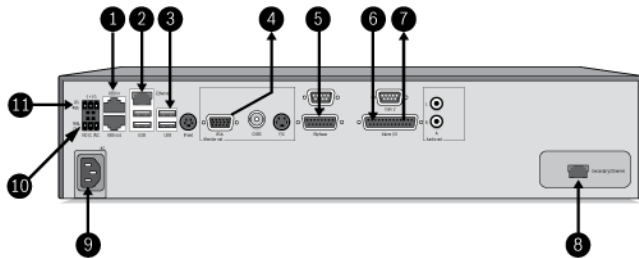
Installation/Configuration Notes

Recommended PC requirements for Control Center

Operating system	Windows XP, Vista, or 7
	DirectX 9c
Processor	Intel Pentium DualCore, 3.0 GHz or comparable
RAM memory	2048 MB or more
Free disk space	10 GB
Graphics card	NVIDIA GeForce 8600 or higher
Network interface	10/100/1000 BaseT



- 1 Keyboard input and looped-through output
- 2 Ethernet
- 3 USB ports
- 4 B monitor connections (VGA, CVBS, Y/C)
- 5 A monitor connections (VGA, CVBS, Y/C)
- 6 Biphas connection
- 7 Alarm inputs
- 8 Alarm outputs
- 9 Audio outputs
- 10 Audio inputs
- 11 Secondary Ethernet (2 GigE versions)
- 12 Camera loop through
- 13 Power input
- 14 Malfunction alarm output
- 15 RS485 port



- 1 Keyboard input and looped-through output
- 2 Ethernet
- 3 USB ports
- 4 Monitor connections (VGA, CVBS, Y/C)
- 5 Biphas connection
- 6 Alarm inputs
- 7 Alarm outputs
- 8 Secondary Ethernet (2 GigE versions)
- 9 Power input
- 10 Malfunction alarm output
- 11 RS485 port

Parts Included

Quantity	Component
1	Divar 700 Series Recorder
2	Power supply cords
1	USB mouse
1	CD-ROM containing the software and manuals
1	Quick installation guide
1	Installation and operation manual
1	Divar 700 Series Control Center operation manual
1	Divar 700 Series Archive Player operation manual

Technical Specifications

Electrical

Rated Voltage and Power

Power input	100 to 240 VAC; 50/60 Hz
Power consumption	Max. 2.5 to 1.0 A (250 Watt) Able to withstand power dips up to 100 MS, assuring continuous operation

Video

Video standard	PAL or NTSC auto-detection
Resolution	704x576 PAL, 704x480 NTSC
Compression	H.264
Inputs	8 or 16 composite video 0.5 to 2 Vpp, 75 ohm automatic termination
Outputs	8 or 16 composite video 1 Vpp, 75 ohm, sync 0.3 V ± 10%

Audio

Inputs	8 or 16 line in (DHR models only), mono RCA, 1 Vpp, 10 kohm
Output	2 line out, dual mono RCA, 1 Vpp, 10 kohm
Compression	MPEG-1 layer II
Sampling rate	48 kHz per channel

Monitors

MON-A	Live, playback, menus
	VGA: analog RGB 1280x1024, 60/75 Hz (NTSC/PAL)
	CVBS: 1 Vpp, 75 ohm, BNC
MON-B (Hybrid models only)	Y/C
	Live
	VGA: analog RGB 1024x768, 60/75 Hz (NTSC/PAL)
	CVBS: 1 Vpp, 75 ohm, BNC
	Y/C

Display Modes

Monitor A	Full, full sequence, quad, multi-screen (live and playback), event call-up (live)
Monitor B (Hybrid models only)	Full, full sequence, quad, multi-screen, event call-up (live)
Frame rate PAL/NTSC	25/30 IPS per channel (real time)
Multiscreen mode 8 channels	1, 2x2, 3x3 (showing 8 channels)
Multiscreen mode 16 channels	1, 2x2, 3x3, 4x4
Zoom	1.5x, 2x, 3x, 5x

Alarm Handling

Inputs	Screw terminal, 8 or 16 inputs, configurable NO/NC, Max. input 40 VDC
Outputs	Screw terminal 4 relay outputs, configurable NO/NC, max. rated 30 VAC, 40 VDC, 0.5 A, continuous -10 VA
Remote notification	Via Control Center software
Malfunction relay	Temperature related failures, Voltage ratings, Disk failures

Connections

Ethernet	1 or 2 RJ45 modular jack, 8 pins shielded: 10/100/1000 Base-T
Biphase	Screw terminal connector (5 outputs) Maximum 5 controllable cameras per Biphase output Impedance 128 ohm, max. overvoltage protection ± 40 V, max. cable length 1.5 km (0.9 miles)
Note: LTC 8785 translator needed for fixed-speed receivers/drivers	
PTZ control interface	RS485
Serial interface	RS232 output signals according to EIA/TIA-232 F, max. input voltage ± 25 V 2xDB-9 male connector
Intuikey keyboard (KBD Digital or KBD Universal)	Conforms to RS485, max. signal voltage ± 12 V, power supply to keyboard 11 to 12.6 VDC at max. 400 mA RJ11 modular jack 6 pins
USB	Five USB 2.0 ports
10/100/1000 Base-T network interfaces (max 2)	Connect with Bosch iSCSI Video Storage Arrays

Network

Bandwidth control	0.1-100 Mbps limiter
Remote users	Maximum 5 simultaneously connected Control Center users
Protocol support	TCP/IP, DHCP, DNS, and SNTP
IP cameras	Up to 16 IP H.264 for DHR models (optional) Up to 32 IP H.264 cameras for DNR models (optional)
Supported IP H.264 devices	Divion, FlexiDome, AutoDome Modular, EX series IP cameras, VIP X series encoders (running firmware 3.7 or later, and AutoDome Easy IP

Storage

Internal HDD	500 GB, 1 or 2 TB per disk Up to 4 hard disks
Redundancy	RAID-4 (4 hard disks plus optional license required) Effective storage = Smallest disk x 3

Exporting

DVD	Built-in DVD+R/RW recorder (optional)
USB	Flash memory or external HDD (FAT32)
Network	Control Center Software

Security

Password protection	Multi-level
Image authentication	All recordings and archives in native file format

Record Frame Rate

NTSC	Up to 30 IPS per channel at 352x240, 704x240 and 704x480
PAL	Up to 25 IPS per channel at 352x288, 704x288 and 704x576
IP Channels	Up to 25/30 IPS per channel at 4CIF

Recording

Overwrite modes	Continuous, overwrite after 1 to 99 days
Pre-alarm recording	Up to 120 s

Playback

Playback function	Fast forward/reverse, frame forward/reverse, freeze
Zoom	1.5x, 2x, 3x, 5x
Search mode	Date/time, Event (motion, input), Text, Smart Search

Mechanical

Dimensions (W x D x H) (excluding cabling)	446 x 443 x 88 mm (17.6 x 17.4 x 3.5 in)
Weight (incl. 4 hard disks)	Approx. 11 kg / 24 lbs
Rack mount kit (included)	For mounting one unit in an EIA 19" rack

Environmental

Operating temperature	+5 °C to +45 °C (+41 °F to +113 °F)
Storage temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Relative humidity	Operating: <93 % non-condensing Storage: <95 % non-condensing

Model options

	Hybrid/ IP	AN CH	IP CH st/max	DIGI in/out	DVD	GigE
DHR-730-08AXXX	Hybrid	8	0/8	8/5		1
DHR-732-08AXXX	Hybrid	8	0/8	8/5	x	1
DHR-751-16AXXX	Hybrid	16	0/16	16/5		1
DHR-753-16AXXX	Hybrid	16	0/16	16/5	x	1
DHR-754-16AXXX	Hybrid	16	0/16	16/5	x	2
DNR-732-08AXXX	IP only	0	8/16	8/5	x	1
DNR-753-16AXXX	IP only	0	16/32	16/5	x	1
DNR-754-16AXXX	IP only	0	16/32	16/5	x	2

XXX	Equals model storage options:
000	0000 GByte HDD
050	0500 GByte HDD (1 drive)
200	2000 GByte HDD (1 drive)
400	4000 GByte HDD (2 drive)
800	8000 GByte HDD (4 drive)
Note	RAID operation requires a 4-drive system and a DHR-SRAID-A license.

Ordering Information

DHR-730-08A000 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 0 GB	DHR-730-08A000
DHR-730-08A050 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 500 GB	DHR-730-08A050
DHR-730-08A200 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 2 TB	DHR-730-08A200
DHR-730-08A400 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 4 TB	DHR-730-08A400
DHR-730-08A800 Digital Hybrid Recorder 730 Series DHR, 1 GigE, 8 CH, 8 TB	DHR-730-08A800
DHR-751-16A000 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 0 GB	DHR-751-16A000
DHR-751-16A050 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 500 GB	DHR-751-16A050
DHR-751-16A200 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 2 TB	DHR-751-16A200
DHR-751-16A400 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 4 TB	DHR-751-16A400
DHR-751-16A800 Digital Hybrid Recorder 750 Series DHR, 1 GigE, 16 CH, 8 TB	DHR-751-16A800
DHR-732-08A000 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 0 GB	DHR-732-08A000
DHR-732-08A050 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 500 GB	DHR-732-08A050
DHR-732-08A200 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 2 TB	DHR-732-08A200
DHR-732-08A400 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 4 TB	DHR-732-08A400
DHR-732-08A800 Digital Hybrid Recorder 730 Series DHR, DVD, 1 GigE, 8 CH, 8 TB	DHR-732-08A800
DHR-753-16A000 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 0 GB	DHR-753-16A000
DHR-753-16A050 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 500 GB	DHR-753-16A050
DHR-753-16A200 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 2 TB	DHR-753-16A200
DHR-753-16A400 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 4 TB	DHR-753-16A400
DHR-753-16A800 Digital Hybrid Recorder 750 Series DHR, DVD, 1 GigE, 16 CH, 8 TB	DHR-753-16A800
DNR-732-08A000 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 0 GB	DNR-732-08A000

Ordering Information

DNR-732-08A050 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 500 GB	DNR-732-08A050
DNR-732-08A200 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 2 TB	DNR-732-08A200
DNR-732-08A400 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 4 TB	DNR-732-08A400
DNR-732-08A800 Digital Network Recorder 730 Series DNR, DVD, 1 GigE, 8 CH, 8 TB	DNR-732-08A800
DNR-753-16A000 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 0 GB	DNR-753-16A000
DNR-753-16A050 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 500 GB	DNR-753-16A050
DNR-753-16A200 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 2 TB	DNR-753-16A200
DNR-753-16A400 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 4 TB	DNR-753-16A400
DNR-753-16A800 Digital Network Recorder 750 Series DNR, DVD, 1 GigE, 16 CH, 8 TB	DNR-753-16A800
DHR-754-16A000 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 0 GB	DHR-754-16A000
DHR-754-16A050 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 500 GB	DHR-754-16A050
DHR-754-16A200 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 2 TB	DHR-754-16A200
DHR-754-16A400 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 4 TB	DHR-754-16A400
DHR-754-16A800 Digital Hybrid Recorder 750 Series DHR, DVD, 2 GigE, 16 CH, 8 TB	DHR-754-16A800
DNR-754-16A000 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 0 GB	DNR-754-16A000
DNR-754-16A050 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 500 GB	DNR-754-16A050
DNR-754-16A200 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 2 TB	DNR-754-16A200
DNR-754-16A400 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 4 TB	DNR-754-16A400
DNR-754-16A800 Digital Network Recorder 750 Series DNR, DVD, 2 GigE, 16 CH, 8 TB	DNR-754-16A800

Ordering Information**Accessories**

DHR-XS050-A 700 Series Storage Expansion 500 GB 500 GB storage expansion kit	DHR-XS050-A
DHR-XS100-A 700 Series Storage Expansion 1 TB 1 TB storage expansion kit	DHR-XS100-A
DHR-XS200-A 700 Series Storage Expansion 2 TB 2 TB storage expansion kit	DHR-XS200-A
DVRXEAP01 ATM/POS Bridge ATM/POS bridge Divar	DVRXEAP01
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
LTC 2604/50 Keyboard Port Expander Unit System4, 230 V, 50 Hz	LTC 2604/50
LTC 2604/60 Keyboard Port Expander Unit System4, 120 V, 60 Hz	LTC 2604/60
LTC 2605/91 Video Manager for use with Divar all Series 1 & 2 models and System4 Multiplexer, 120/230 VAC, 50/60 Hz	LTC 2605/91
REG-SENTRY-00-1EU REG Sentry Access Control Access Control REG Sentry-00, No Camera	REG-SENTRY-00-1EU
REG-SENTRY-X-1EU REG Sentry Access Control Access Control REG Sentry-X, 16 mm PAL	REG-SENTRY-X-1EU
Software Options	
DHR-SIP01-A 700 Series License 1 IP 700 Series License 1 IP	DHR-SIP01-A
DHR-SIP04-A 700 Series License 4 IP 700 Series 4 IP License	DHR-SIP04-A
DHR-SIP08-A 700 Series License 8 IP 700 Series 8 IP License	DHR-SIP08-A
DHR-SRAID-A 700 Series License RAID 700 Series RAID License	DHR-SRAID-A
DXS-700 Series Text license 700 Series Text license	DXS-700-Text

DiBos IP Recorder Software (EMEA/APR)



Features

- ▶ **Recording Software for Bosch MPEG-4 and JPEG video sources**
- ▶ **Connect up to 32 IP video sources**
- ▶ **View/record video at CIF/2CIF/4CIF/Megapixel resolution**
- ▶ **Connect to other DiBos recorders**
- ▶ **Web-browser remote access and viewing**
- ▶ **Camera tamper detection**
- ▶ **Interfacing to Bosch alarm panels**
- ▶ **Unlimited Remote Receiver Clients**

DiBos IP Recorder Software uses Bosch's proven state of the art digital recording and communications technology and takes video surveillance to a new level. It is an integral part of overall security solutions for a wide range of applications – including banks, large retailers, railway stations, airports, city centers, industrial facilities, and office buildings.

With DiBos customers can retrieve vital images and share information faster than ever before. They can better assess critical situations and take action immediately. Whether they are on site or at a remote network location, authorized personnel have quick, convenient access to information so they can operate more effectively and efficiently.

DiBos supports live viewing and recording at resolutions up to 2048 x 1536 pixels (3 Megapixel) and frame rates up to 30/25 ips. Users can connect up to 32 IP video sources. This includes support for Bosch MPEG-4 IP cameras (Dinion IP, FlexiDome IP and AutoDome IP), Bosch MPEG-4 video encoders (VideoJet and VIP X Series), Bosch Megapixel cameras, as well as JPEG images from numerous IP camera manufacturers.

The system offers advanced features for viewing and a very high flexibility in recording and image access. The real power of DiBos is fast, convenient accessibility to images and information. If required, accessibility to images and information is possible round the clock and everywhere all over the world. Communication and access to DiBos is possible via private or public networks. For these purposes the system can be connected to a variety of peripheral devices and systems.

The unique, scalable GUI allows live and recorded images from multiple remote systems to be viewed from a single PC or another DiBos. With this powerful tool, security managers can monitor and supervise various locations simultaneously.

Cameras and viewing modes can be programmed or selected manually. Each camera offers in-window pan/tilt/zoom functionality from local or remote facilities. Images are displayed with date/time, location, camera name and status of connected devices such as detectors and sensors. DiBos can be programmed to respond to specific situations and events automatically. Minimal human intervention is necessary.

In response to alarms, the system can be programmed to transmit images or messages to security personnel or the security control center.

Playback is easy thanks to familiar search and navigation functions in a tree structure. Images can be accessed locally or remotely via a company network or the Internet. The customer can select multiple different views from up to 30 cameras. Fast, powerful image search functions eliminate time consuming manual searches. Functions include search for image changes (Smart Motion Search), search for criteria such as camera number and recording date/time.

To ensure high security, all access is controlled by user authorization. Profiles are assigned by the system administrator. Events, such as login, logoff, status changes, image transmission, and system shutdown are stored in a database. Video authentication is built in to ensure that DiBos images are not altered in any way.

Various storage devices – such as external disk arrays, RAID and NAS devices, and external disk drives – may be used for export and backup of images.

The configuration wizard makes installation quick and easy. DiBos can connect to Bosch alarm panels and Allegiant matrices via the RS232 serial port.

Technical Specifications

Maximum recording rate (analog and IP)	50 Mbit per second
Recording resolution (IP inputs - Bosch IP devices)	PAL: 704 x 576 (4CIF/D1), 704 x 288 (2CIF), 464 x 576 (2/3 D1), 352 x 576 (1/2 D1), 352 x 288 (CIF), 176 x 144 (QCIF) NTSC: 704 x 480 (4CIF/D1), 704 x 240 (2CIF), 464 x 480 (2/3 D1), 352 x 480 (1/2 D1), 352 x 240 (CIF), 176 x 120 (QCIF)
Recording rates per channel (video inputs IP)	PAL: 0,5; 1; 2; 3; 4; 5; 6; 8; 12,5; 25 ips NTSC: 0,5; 1; 2; 3; 5; 6; 7,5; 10; 15; 30 ips
Supported single channel encoders Bosch VideoJet Series and Bosch VIP Series	VideoJet 10S, VideoJet 1000 VideoJet X10 VIP X1, VIP 10
Supported multi channel encoders Bosch VideoJet Series and Bosch VIP Series	VideoJet 8004, VideoJet 8004A VideoJet 8008, VideoJet 8008A VideoJet X20, VideoJet X40 VIP X2, VIP X2A, VIP X1600
Supported Bosch IP cameras	Dinion IP, AutoDome IP, FlexiDome IP, Megapixel IP
JPEG protocol	JPEG image request via HTTP
Supported JPEG cameras from other manufacturers	IP cameras from Axis, Sony and Mobotix. For further information please contact Bosch Security Systems

Minimum requirements for computer with DiBos Receiver Software/IP Recorder Software (in brackets recommended requirements)

Operating system	Windows XP Professional, 32-bit versions; Windows Vista, 32-bit versions
CPU	Pentium 4, 3 GHz with Hyper Threading, (Core 2 Duo CPU)
RAM	1024 MB (2048 MB)
VGA card	32-Bit color depth (DirectX 9 Hardware Support, no shared memory)
Recording partition	Dedicated partition for recording
Network adapter	1000 Base-T, Gbit

Windows XP and Windows Vista are registered trademarks of Microsoft Corporation

Ordering Information**Software Options**

DB SR 002-B DiBos 8 Receiver SW Burning License	DBSR002-B
DB SR 042 EXP IP Recorder DiBos IP expansion, 4 IP devices (maximum 32 IP devices)	DBSR042EXP
DB SE 016 DiBos ATM POS Bridge License Software interface via TCP/IP to Bosch ATM/POS bridge.	DBSE016
DB SE 017 DiBos IP Software License Software interface via TCP/IP socket connection to IP server providing POS, ATM or other data.	DBSE017

Ordering Information

DB SR 042 IP Recorder Software DiBos IP recorder software, recording of up to 4 IP devices.	DBSR042
DB SR 082 IP Recorder Software DiBos IP recorder software, recording of up to 8 IP devices.	DBSR082
DB SR 162 IP Recorder Software DiBos IP recorder software, recording of up to 16 IP devices.	DBSR162
DB SR 322 IP Recorder Software DiBos IP recorder software, recording of up to 32 IP devices (not expandable).	DBSR322

DVRXEAP01 ATM/POS Bridge



Features

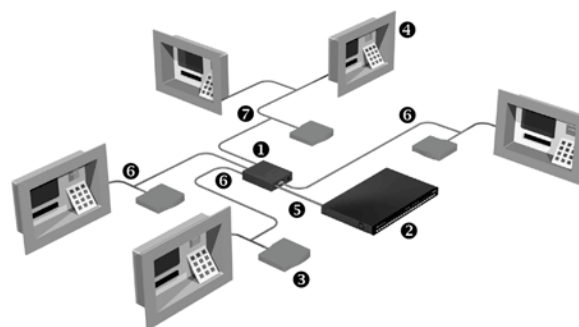
- ▶ Supports both ATM and POS devices
- ▶ Multiple connection ports
- ▶ Connect using network interface

The ATM/POS bridge provides an interface between a digital recorder (for example the Divar) and either Automatic Teller Machines (ATM) or Point-of-Sale (POS) equipment such as cash registers. This allows financial transaction data to be recorded and linked to specific camera images. Up to 4 devices may be connected to each ATM/POS bridge. Both single- and multi-drop ATM networks are supported.

The bridge is easy to install. It communicates with the digital recorder via a standard Ethernet cable, making it possible to use it anywhere on a local area network. Configuration of the bridge can be done by simply connecting a PC via a serial cable and connecting with Windows HyperTerminal.

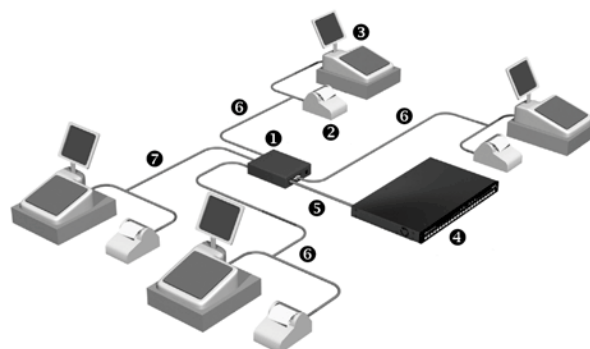
By using an ATM/POS bridge, a digital recorder can be easily integrated into a wide range of critical banking and retail applications. Please contact your Bosch sales support representative for more information on the ATM/POS protocols and the Bosch Security Systems digital recorders that are supported.

Installation/Configuration Notes



Configuration exemplar for ATM's

01	ATM/POS Bridge	05	Ethernet
02	Digital Recorder	06	RS-232
03	ATM Modem	07	RS-485
04	ATM		



Configuration example for POS terminals

01	ATM/POS Bridge	05	Ethernet
02	Receipt Printer	06	RS-232
03	POS Terminal	07	RS-485
04	Digital Recorder		

Technical Specifications

Electrical

External DC power supply (included)

- Input	100 to 240 VAC; 150 mA, 50/60 Hz
- Output	12 VDC; 450 mA

Interface to recorder Ethernet, 10BaseT

Terminal connection ports

- 1 RS232, async., signals according EIA/TIA-232-F
- 2 RS232, async. or sync., signals according EIA/TIA-232-F
- 1 RS485, asynchronous

Connectors

Power	DC jack, positive center pin, 10-30 VDC
Ethernet	RJ45 shielded, 10Base
Terminal Connectors	DB9 male

Supported ATM/POS devices

Standard	Serial EPSON TM-T88II, TM-T88-III, TM-U200B/D, TM-U300A/B and TM-L60II POS printers Plain ASCII text
Customer-Specific	Contact your Bosch Security Systems sales representative for more information

Supported DVR's	Divar-2 (required ATM/POS license included for 1 Divar)
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Mechanical

Dimensions	152 x 110 x 35 mm (5.98 x 4.33 x 1.38 inch)
Weight	Approx. 0.6 kg (1.3 lb)
Mounting Kit	For mounting one unit

Environmental

Temperature (bridge only)	
- Operating	+0°C to +45°C (+32°F to +113°F)
- Storage	-25°C to +70°C (-13°F to +158°F)
Relative Humidity	
- Operating	<80% non-condensing
- Storage	<90% non-condensing

Electromagnetic Compatibility

EMC requirements	
- USA	FCC Part 15 Class B
- EU	EMC directive 89/336/EEC
Immunity	EN 50130-4
Emission	EN 55022 Class B
Harmonics	EN 61000-3-2
Voltage Fluctuations	EN 61000-3-3

Safety

- USA	UL 60950
- EU	EN 60950
- Can.	CAN/CSA - C22.2 - 60950-00

Ordering Information

DVRXEAP01 ATM/POS Bridge
ATM/POS bridge Divar

DVRXEAP01

IntuiKey Series Keyboards



Features

- ▶ **Control matrix, DVR, and IP video products with one keyboard**
- ▶ **Soft keys allow for product-specific menus**
- ▶ **Backlit keys and easy-to-read displays**
- ▶ **Simplified system programming with an intuitive interface**
- ▶ **Multilingual support**
- ▶ **Plug-and-play with Bosch Switchers, DVRs, Multiplexers, and IP solutions**
- ▶ **Optional PC software supports customizable Allegiant command script programming**

The IntuiKey Series keyboards are full function, multipurpose keyboards used for system control and programming. The IntuiKey includes an integral variable speed pan/tilt/zoom (PTZ) joystick and a splash resistant design. An optional rack mount kit allows the IntuiKey to be mounted in a standard EIA 48 cm (19 in.) rack.

Functions

The IntuiKey Digital Keyboard is available in two models, KBD-Universal and KBD-Digital. The Universal version can be connected to an Allegiant switcher and either Divar Digital Video Recorders or System4 Multiplexers at the same time. This capability eliminates the need for multiple keyboards. The KBD-Digital version supports Divar Digital Video Recorders and System4 Multiplexers. Both types can be used with the Bosch VMS and with the VIDOS video management systems.

The IntuiKey accepts both the standard Allegiant RS-485 Keyboard protocol and the Allegiant RS-232 protocol. The Allegiant RS-232 Keyboard protocol is well suited when communicating to a remote KBD-Universal over an IP network.

The IntuiKey can also operate in a Terminal mode using a special RS-232 protocol. This mode allows third-party integrators and internal developers to use the IntuiKey as a customizable user interface.¹

The main Allegiant switcher, the Divar Digital Video Recorder, or the System4 Multiplexer provides power when used in a local configuration. At remote distances, an optional auxiliary power supply (sold separately) provides power.

The keyboard is connected to a system using a supplied 3 m (10 ft) cable. Simply attach the keyboard and the system is operational. No additional programming is required.

The IntuiKey's soft keys provide a menu-driven system for ease of use. The soft keys make it easy for new operators to program and control even the largest systems without memorizing system commands.

The IntuiKey features a quick selection menu function, providing immediate access to the most commonly used screen displays.

The IntuiKey also features a user-friendly menu tree approach for programming all advanced system and camera settings. Languages available via the IntuiKey unit are English, Spanish, Dutch, French, German, Italian, Polish, Portuguese, Turkish, Hungarian, Swedish, Finnish, and Danish. Additional languages can be downloaded from the IntuiKey section of www.boschsecurity.us. The additional languages are: Norwegian, Greek, Czech, Russian, Slovak, Arabic, Simplified Chinese, Traditional Chinese, Korean, and Japanese.

1. Contact your local Bosch Security System sales representative for details about obtaining Terminal mode protocol information.

Certifications and Approvals

Region	Certification	
Europe	CE	DEKLARACJA ZGODNOŚCI EC KBD-DIGITAL/UNIVERSAL
		DEKLARACJA ZGODNOŚCI EC KBD-MUX/UNIVERSAL
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations	
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC Standards	

Technical Specifications

Electrical

Operating Voltage

12–15 VAC/DC (supplied by one, or a combination of Allegiant switchers, Divar Digital Video Recorder, System4 Multiplexers, or optional power supply)

Power	5 W nominal
Allegiant Signal	RS-485: 2-wire, 9600 Baud, 8 bits, no parity, 1 stop bit RS-232: 3-wire, 9600 Baud, 8 bits, no parity, 1 stop bit
Mux/DVR Signal	RS-485: 2-wire, 19,200 Baud, 8 bits, no parity, 1 stop bit
Terminal Mode Signal	RS-232: 3 wire, 9600 Baud, 8 bits, no parity, 1 stop bit
Console Signal	RS-232 RTS/CTS handshaking, 19,200/57600 Baud, 8 bits, no parity, 1 stop bit

Mechanical

Construction Finish	Charcoal
Width	327 mm (12.9 in.)
Depth	190 mm (7.5 in.)
Height	75 mm (2.9 in.)
Weight	1.1 kg (2.6 lb)
Allegiant Connector	RJ-11 data/power
Mux/DVR Connector	RJ-11 data/power
Aux Power Connector	Bayonet plug (optional)
Console Connector	Male, 9-pin D-sub

Environmental

Enclosure	Splash-resistant
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Temperature

Operating	0°C to 50°C (32°F to 122°F)
Storage	–20°C to 50°C (–4°F to 122°F)
Relative Humidity	10%–90%, non-condensing

Compatibility

Allegiant	Backwards compatible with all systems using variable speed protocol (CPU firmware 5.3 and higher, released 6/94)
Divar	All models
System4	Backwards compatible with all System4 Multiplexers
BVMS	Version 1.10 or later
VIDOS	Version 3.0 or later

Optional Software

IntuiKey Script Application (ISA)
The IntuiKey Script Application is a PC-based software program used to customize the macro buttons in the Command Script menu screens of the KBD-Universal model keyboard. Command Script macro functions are applicable when the keyboard is connected to an Allegiant series matrix switcher.

Requirements	Pentium-class PC with Windows NT, 2000, XP, Vista (32 or 64 bit), or Windows Server 2003; One (1) serial port; IntuiKey firmware v1.94 or later
Availability	Download software from the IntuiKey section at www.boschsecurity.com

Pentium is a registered trademark of Intel Corporation.

Windows, Windows XP, Windows 2000, Vista and Windows NT® are registered trademarks of Microsoft Corporation.

Allegiant, Divar and System4 are registered by Bosch Security Systems, Inc. in the US Patent Trademark Office.

Ordering Information

KBD-Universal Keyboard IntuiKey Universal Keyboard for use with Allegiant, Divar, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-UNIVERSAL
KBD-Digital Keyboard IntuiKey Digital Keyboard for use with Divar Digital Video Recorders, System4 Multiplexers, Bosch VMS, and VIDOS	KBD-DIGITAL
Accessories	
KBD-120PS Power Supply Unit 120 VAC/12 VDC, 600 mA, 50/60 Hz power supply and power cable	KBD-120PS
KBD-220PS Power Supply Unit 220-240 VAC/12 VDC, 600 mA, 50/60 Hz power supply and cable	KBD-220PS
LTC 8557/50 Keyboard Extension Kit Hook-up kit for remote keyboard, up to 1.5 km (5000 ft), includes power supply for 230 VAC, 50 Hz	LTC 8557/50
LTC 8557/60 Keyboard Extension Kit Hook-up-kit for remote keyboard, up to 1.5 km (5000 ft), includes power supply for 120 VAC, 60 Hz	LTC 8557/60
LTC 8558/00 Keyboard Cable length 30 m (100 ft)	LTC 8558/00
KBD-RACK Rack mount kit for KBD-Universal and KBD-Digital, 48 cm (19 in.) EIA standard rack unit; W x H: 428 x 220 mm (19 x 8.75 in.); 1 kg (2 lb)	KBD-RACK

DVSA Premium Series Digital Video Storage Array



Features

- ▶ **Preconfigured RAID 5 protection with up to 7.5 Terabytes of video storage (DVA-16K-16050RA) or 15 Terabytes (DVA-16K-16100RA)**
- ▶ **Eight or sixteen bays for hot-swappable 3 Gbps SATA-II hard disk drives**
- ▶ **Redundant hot-swappable power supplies and dual-host capability for two DVRs**
- ▶ **DVSA management using Bosch RAIDWatch GUI**
- ▶ **Dual SCSI U-320 interface**
- ▶ **Modular design for simple service**
- ▶ **2 and 3 HU 19" rack mount chassis**

The DVSA Premium series, Bosch Digital Video Storage Array, is built for the security industry's most demanding digital video storage applications, providing high capacity, unlimited flexibility and unmatched reliability.

Functions

Bosch DVSA satisfies the ever increasing demands of CCTV for video – high speed recording, high performance playback, uninterruptable reliability and massive capacities. With complete RAID 5 protection and SATA-II hard drives, it is ideally suited for when the highest level of data availability is demanded.

The "Premium" models are fully featured RAID 5 disk arrays. With the focus on nonstop reliability all critical components (including the drive trays, power supply units and cooling modules) are hot-swappable within the cableless modular chassis.

Bosch DVSA "Premium" models are also designed for expansion. Dual-stack connectors allow for daisy-chaining the disk arrays for when extremely large capacities are required per DVR or NVR. Alternatively 2 DVRs can share a single DVSA disk array using the dual-host capacity, which improves the cost-effectiveness of the RAID-based solution.

In the event of failure, the Bosch Digital Video Storage Array sounds an audible alarm to notify a user. The units also ensure that system managers are constantly updated on status via a choice of channels, including email, fax, LAN broadcast, SNMP traps, MSN Messenger and SMS messages. The choice of channel depends on the infrastructure in place and user preferences.

Up to 8 or 16 SATA-II drive channels are routed through the backplane board to the lockable drive trays installed on the front panel of the Bosch DVSA. The completely cableless, backplane-based design eliminates problems associated with cable connections and offers a higher level of serviceability.

Bosch DVSA supports multiple RAID configurations, each with distinct write policy, stripe size and optimization modes. Hot rebuild and numerous fault correction mechanisms ensure the highest standard of RAID protection. Each unit has a battery backup unit (BBU) installed to prevent data loss during a power failure. Combined with comprehensive firmware features, the Bosch Digital Video Storage Arrays ensure maximum reliability and exceptional data availability in today's data intensive video storage environments.

A highly reliable storage solution is assured by factory burn-in procedures and extensive selection process for hard disk drives, covered by the Bosch 3 year warranty program.

Note for ordering:

The appropriate SCSI connection cable and the Diskarray cabinet slider must be ordered separately.

Certifications and Approvals

Region	Certification	
Europe	CE	DVA-08K
		DVA-16K

Installation/Configuration Notes



DVSA rear view

The Bosch RAIDWatch Manager is a Java-based RAID management software that provides a user-friendly graphical interface for configuring and monitoring RAID systems. The program is specifically designed to manage Bosch DVSA.

Bosch RAIDWatch simplifies the otherwise complicated process of array configuration, giving system integrators a wide range of convenient RAID management options. The Bosch DVSA is equipped with an Ethernet port for local and remote management. The software gives system administrators fingertip control to instantly deploy, configure, manage and monitor multiple storage subsystems at local or remote locations. The “Install Once, Run Anywhere” convenience saves time and ensures continuous operation. With WAN/LAN support an operator can manage multiple Bosch DVSA from a single workstation.

Technical Specifications

Electrical

Model No.	No. of Hard Drives	Voltage Range	Operating Power*
DVA-08K-04050RA	4x 500 GB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-08K-04100RA	4x 1 TB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-08K-08050RA	8x 500 GB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-08K-08100RA	8x 1 TB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-16K-08050RA	8x 500 GB	120/240 VAC, 50/60 Hz	460 W (1573 BTU/hour)
DVA-16K-08100RA	8x 1 TB	120/240 VAC, 50/60 Hz	460 W (1573 BTU/hour)
DVA-16K-16050RA	16x 500 GB	120/240 VAC, 50/60 Hz	460 W (1573 BTU/hour)

Model No.	No. of Hard Drives	Voltage Range	Operating Power*
DVA-16K-16100A	16x 1 TB	120/240 VAC, 50/60 Hz	460 W (1573 BTU/hour)

*Power is based on the unit's maximum operating conditions.

Peak Current	DVA-08K: 6 A / 115 VAC or 3 A / 230 VAC DVA-16K: 10 A / 115 VAC or 5 A / 230 VAC
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Accessories

Required cables (not supplied with the array)

DiBos	DVA-ACON-HD68A
Divar	DVA-ACON-HD50A
NVR	DVA-ACON-VD68A

Required every year (1 preinstalled in the array)

Battery backup	DVA-SBBK-00A
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The DVSA includes a controller board, power supply, and a specified number of hard disks. Additional accessories are optional, for redundancy, hot spare or installation. For installation into a rack, a slider rail must be used.

Item	Type #
Hard Disk assembly (500 GB)	DVA-ADTK-050A
Hard Disk assembly (1 TB)	DVA-ADTK-100A
Loop-through cable (0.5 m)	DVA-ACON-VD680A
Power supply 8 bay array	DVA-SPKK-08A
Power supply 16 bay array	DVA-SPKK-16A
Fan module 8 bay array	DVA-SFAK-08A
Fan module 16 bay array	DVA-SFAK-16A
Dual channel SCSI controller 8 bay array	DVA-SCDK-08A
Dual channel SCSI controller 16 bay array	DVA-SCDK-16A
Slider rail for cabinet 533 mm to 724 mm, 8 Bay	DVA-ASRK-28A
Slider rail for cabinet 647 mm to 900 mm, 8 Bay	DVA-ASRK-36A

Item	Type #
Slider rail for cabinet 521 mm to 812 mm, 16 Bay	DVA-ASRK-32A
Slider rail for cabinet 600 mm to 900 mm, 16 Bay	DVA-ASRK-35A

Compatible Bosch Video Servers

DiBos
Divar
NVR

Mechanical**Connectors**

Power	IEC Male
RS-232 (Serial) Port	3.5 mm jack with included adapter cable (from 3.5 mm plug to 9 Pin Female Sub-D and 9 Pin Male to Female Null Modem Adapter), for upgrade and service
Host Ports	2x manual-terminating, Ultra SCSI-320
Loop-through	2x Ultra SCSI-320 Divar: Connect max. 2 arrays DiBos / NVR: Connect max. 3 arrays
Network	RJ45, Ethernet 10/100 Base-T compatible

Dimensions (WxHxD)

8 bay Array	446 x 88 x 490 mm 17.6 x 3.5 x 19.3 in.
16 bay Array	445 x 130 x 488 mm 17.6 x 5.1 x 19.3 in.

Weight

8 bay Array	32.5 kg, (71.6 lb) approx.
16 bay Array	46 kg, (101.4 lb) approx.

Environmental

Operating Temperature	0°C to 40°C (32°F to 104°F)
Relative Humidity	5% to 95% non condensing
Electromagnetic Compatibility (EMC)	Complies with FCC and CE Regulations
Product Safety	CE, UL, CB, EN, and IEC
Warranty (excl battery)	3 years
Warranty battery back-up unit	1 year

Ordering Information

DVA-ACON-VD680A Loop through SCSI cable 0.5 m, VHDCI-VHDCI plug	DVA-ACON-VD680A
DVA-SBBK-00A Battery Backup Unit	DVA-SBBK-00A
DVA-ADTK-050A Diskarray HDD expansion, 500 GB	DVA-ADTK-050A
DVA-ADTK-100A Diskarray HDD expansion, 1 TB	DVA-ADTK-100A
DVA-SPKK-08A PSU for 8-bay Premium Diskarray, 350 W	DVA-SPKK-08A
DVA-SPKK-16A PSU for 16-bay Premium Diskarray, 460 W	DVA-SPKK-16A
DVA-SFAK-08A Diskarray Fan Module for 8- and 12-bay	DVA-SFAK-08A
DVA-SFAK-16A Diskarray Fan Module for 16-bay	DVA-SFAK-16A
DVA-SCDK-08A Diskarray Controller for DVA-08K	DVA-SCDK-08A
DVA-SCDK-16A Diskarray Controller for DVA-16K	DVA-SCDK-16A
DVA-ASRK-28A Diskarray Cabinet Slider for DVA-08 and DVA-12, 533 mm - 724 mm/ 21 in. - 28.5 in.	DVA-ASRK-28A
DVA-ASRK-32A Diskarray Cabinet Slider for DVA-16, 610 mm - 813 mm/24 - 32 in.	DVA-ASRK-32A
DVA-ASRK-36A Diskarray Cabinet Slider for DVA-08 and DVA-12, 647 mm - 914 mm/ 25.5 in. - 36 in.	DVA-ASRK-36A
DVA-ASRK-35A Diskarray Cabinet Slider for DVA-16, 660 - 914 mm/26 - 36 in.	DVA-ASRK-35A

Ordering Information

DVA-08K-04050RA SCSI Diskarray 8-bay 4 HDD, 2 TB	DVA-08K-04050RA
DVA-08K-04100RA SCSI Diskarray 8-bay 4 HDD, 4 TB	DVA-08K-04100RA
DVA-08K-08050RA SCSI Diskarray 8-bay 8 HDD, 4 TB	DVA-08K-08050RA
DVA-08K-08100RA SCSI Diskarray 8-bay 8 HDD, 8 TB	DVA-08K-08100RA
DVA-16K-08100RA SCSI Diskarray 16-bay 8 HDD, 8 TB	DVA-16K-08100RA
DVA-16K-16050RA SCSI Diskarray 16-bay 16 HDD, 8 TB	DVA-16K-16050RA
DVA-16K-16100RA SCSI Diskarray 16-bay 16 HDD, 16 TB	DVA-16K-16100RA

Accessories

DVA-ACON-HD50A Divar SCSI cable 0.5 m, HD50-VHDCI plug	DVA-ACON-HD50A
DVA-ACON-HD68A DiBos SCSI cable 1 m, HD68-VHDCI plug	DVA-ACON-HD68A
DVA-ACON-VD68A NVR SCSI cable 1 m, VHDCI-VHDCI plug	DVA-ACON-VD68A

DVSA Lite Series Digital Video Storage Array



Features

- ▶ **Preconfigured RAID 5 protection with up to 3.5 Terabytes of video storage (DVA-08E-08050RA) or 7 Terabytes (DVA-08E-08100RA)**
- ▶ **Eight bays for hot swappable 3 Gbps SATA hard disk drives**
- ▶ **DVSA Management using Bosch RAIDWatch GUI**
- ▶ **Single SCSI U-320 interface, no loop-through**
- ▶ **Modular design for simple service**
- ▶ **Hot swappable dual speed fan to reduce system noise**
- ▶ **High density 2 HU 19 in. rack mount chassis**

The Bosch Digital Video Storage Array (DVSA) Lite series is built for the security industries most demanding digital video storage applications, providing high capacity, unlimited flexibility and unmatched reliability.

Functions

Bosch DVSA satisfies the ever increasing demands of CCTV for video – high speed recording, high performance playback, uninterruptable reliability and massive capacities. With complete RAID 5 protection and SATA -II hard drives, it is ideally suited for when the highest level of data availability is demanded.

The “Lite” models are fully featured RAID 5 disk arrays with a single SCSI U-320 interface (no loop-through for cascading supported). With the focus on non stop reliability all critical components, including the drive trays and cooling modules are hot-swappable within the cableless modular chassis.

In the event of a failure, the Bosch Digital Video Array sounds an audible alarm to notify a user. The units also ensure that system managers can be constantly updated with their status via a choice of channels, including email, fax, LAN broadcast, SNMP traps, MSN Messenger and SMS messages depending on the infrastructure in place and user preferences.

The 8 SATA-II drive channels are routed through the backplane board to the lockable drive trays installed via the front of the Bosch DVSA. The completely cableless, backplane-based design eliminates problems associated with cable connections and offers a higher level of serviceability.

Certifications and Approvals

Region	Certification	
Europe	CE	DVA-8E

Installation/Configuration Notes



DVA-08E rear view

The Bosch RAIDWatch Manager is a Java-based RAID management software that provides a user-friendly graphical interface for configuring and monitoring RAID systems. The program is specifically designed to manage Bosch DVSA.

Bosch RAIDWatch simplifies the otherwise complicated process of array configuration, giving system integrators a wide range of convenient Raid management options. The Bosch DVSA is equipped with an Ethernet port for local and remote management. The software gives system administrators fingertip control to instantly deploy, configure, manage and monitor multiple storage subsystems at local or remote locations. The “Install Once, Run Anywhere” convenience saves time and ensures continuous operation. With WAN/LAN support an operator can manage multiple Bosch DVSA from a single workstation.

Note for ordering:

The appropriate SCSI connection cable and the Diskarray cabinet slider must be ordered separately.

Technical Specifications**Electrical**

Model No.	No. of Hard Drives	Voltage Range	Operating Power*
DVA-08E 04050RA	4x 500 GB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-08E 04100RA	4x 1 TB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-08E 08050RA	8x 500 GB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)
DVA-08E 08100RA	8x 1 TB	120/240 VAC, 50/60 Hz	350 W (1197 BTU/hour)

*Power is based on the unit's maximum operating conditions.

Peak Current 6 A / 115 VAC or 3 A / 230 VAC

Accessories

Required cables (not supplied with the array)

DiBos	DVA-ACON-HD68A
Divar	DVA-ACON-HD50A
NVR	DVA-ACON-VD68A

The DVSA includes a controller board, power supply and a specified number of hard disks. Additional accessories are optional, for redundancy, hot spare or installation.

Item	Type #
Hard Disk Assembly (500 GB)	DVA-ADTK-050A
Hard Disk Assembly (1 TB)	DVA-ADTK-100A
Power Supply	DVA-SPEK-08A
Fan module	DVA-SFAK-08A
Single channel SCSI controller	DVA-SCSK-08A
Slider rail for cabinet 533 mm – 724 mm	DVA-ASRK-28A
Slider rail for cabinet 647 mm – 900 mm	DVA-ASRK-6A

Compatible Bosch Video Servers

DiBos
Divar
NVR

Mechanical**Connectors**

Power	IEC Male
RS-232 (Serial) Port	DB-9 Male, for upgrade and service
Host Ports	One (1) auto-terminating, no loop-through, Ultra SCSI-320
Network	RJ-45, Ethernet 10/100BaseT compatible

Connectors

Dimensions (WxHxD)	446 x 88 x 490 mm 17.6 x 3.5 x 19.3 in.
Weight	28 kg (62 lbs), approximate
Environmental	
Operating Temperature	0°C to 40°C (32°F to 104°F)
Relative Humidity	5% to 95% non condensing
Electromagnetic Compatibility (EMC)	Complies with FCC and CE Regulations
Product Safety	CE, UL, CB, EN and IEC
Warranty	3 Years

Ordering Information

DVA-08E-04050RA SCSI Diskarray 8-bay Lite 4 HDD, 2 TB	DVA-08E-04050RA
DVA-08E-04100RA SCSI Diskarray 8-bay Lite 4 HDD, 4 TB	DVA-08E-04100RA
DVA-08E-08050RA SCSI Diskarray 8-bay Lite 8 HDD, 4 TB	DVA-08E-08050RA
DVA-08E-08100RA SCSI Diskarray 8-bay Lite 8 HDD, 8 TB	DVA-08E-08100RA

Accessories

DVA-ACON-HD50A Divar SCSI cable 0.5 m, HD50-VHDCI plug	DVA-ACON-HD50A
DVA-ACON-HD68A DiBos SCSI cable 1 m, HD68-VHDCI plug	DVA-ACON-HD68A
DVA-ACON-VD68A NVR SCSI cable 1 m, VHDCI-VHDCI plug	DVA-ACON-VD68A
DVA-ADTK-050A Diskarray HDD expansion, 500 GB	DVA-ADTK-050A
DVA-ADTK-100A Diskarray HDD expansion, 1 TB	DVA-ADTK-100A
DVA-SFAK-08A Diskarray Fan Module for 8- and 12-bay	DVA-SFAK-08A
DVA-ASRK-28A Diskarray Cabinet Slider for DVA-08 and DVA-12, 533 mm - 724 mm/ 21 in. - 28.5 in.	DVA-ASRK-28A
DVA-ASRK-36A Diskarray Cabinet Slider for DVA-08 and DVA-12, 647 mm - 914 mm/ 25.5 in. - 36 in.	DVA-ASRK-36A

DVSA Premium Series iSCSI Digital Video Storage Array



Features

- ▶ **Preconfigured RAID 5 protection with up to 11 Terabytes (DVA-12T-12100RA)**
- ▶ **Shared storage over Ethernet**
- ▶ **Twelve bays for hot swappable 3Gbps SATA-II hard disk drives**
- ▶ **Redundant hot swappable power supplies and high-speed network connectivity**
- ▶ **DVSA Management using Bosch RAIDWatch GUI**
- ▶ **Two Gigabit Ethernet Ports**
- ▶ **Modular design for simple service**
- ▶ **Dual speed fans to reduce system noise**
- ▶ **High density 2 HU 19" rack mount chassis**

The DVSA Premium series, Bosch Digital Video Storage Array, is built for the security industries most demanding digital video storage applications, providing high capacity, unlimited flexibility and unmatched reliability.

Functions

Bosch DVSA satisfies the ever increasing demands of CCTV for video – high speed recording, high performance playback, uninterruptable reliability and massive capacities. With complete RAID 5 protection and SATA-II hard drives, it is ideally suited for when the highest level of data availability is demanded.

The “Premium” models are fully featured RAID 5 disk arrays. With the focus on non stop reliability all critical components, including the drive trays, power supply units and cooling modules, are hot-swappable within the cableless modular chassis.

Bosch DVSA “Premium” models are also designed for expansion. Two Gigabit Ethernet ports allow the connection of up to 31 Bosch video servers over standard Ethernet networks, which improves the cost-effectiveness of the RAID-based solution. The Bosch DVSA iSCSI solution is ideal for building a shared pool of storage for Bosch Video Servers.

In the event of a failure, the Bosch Digital Video Storage Array sounds an audible alarm to notify a user. The units also ensure that system managers can be constantly updated with their status via a choice of channels, including email, fax, LAN broadcast,

SNMP traps, MSN Messenger and SMS messages depending on the infrastructure in place and user preferences.

The 4 or 12 SATA-II drive channels are routed through the backplane board to the lockable drive trays installed via the front of the Bosch DVSA. The completely cableless, backplane-based design eliminates problems associated with cable connections and offers a higher level of serviceability.

Bosch DVSA supports multiple RAID configurations, each with distinct write policy, stripe size and optimization modes. Hot rebuild and numerous fault correction mechanisms ensure the highest standard of RAID protection. Each unit has a battery backup unit (BBU) installed to prevent data loss during a power failure.

When used with the Bosch iSCSI-based applications, e.g. VRM, the DVSA Premium Series iSCSI Digital Video Storage Array provides a bandwidth up to 200 Mbit/s and 43 concurrent iSCSI sessions.

Combined with comprehensive firmware features, the Bosch Digital Video Storage Arrays ensures extreme reliability and exceptional data availability in today’s most data intensive video storage environments. A highly reliable storage solution is assured by factory burn-in procedures and extensive selection process for hard disk drives, covered by the Bosch 3 year warranty program.

Note for ordering:

The appropriate Diskarray cabinet slider must be ordered separately.

Certifications and Approvals

Region	Certification	
Europe	CE	DVA-12T

Installation/Configuration Notes



DVSA Rear view.

The Bosch RAIDWatch Manager is a Java-based RAID management software that provides a user-friendly graphical interface for configuring and monitoring RAID systems. The program is specifically designed to manage Bosch DVSA.

Bosch RAIDWatch simplifies the otherwise complicated process of array configuration, giving system integrators a wide range of convenient RAID management options. The Bosch DVSA is equipped with Ethernet ports for local and remote management. The software gives system administrators fingertip control to instantly deploy, configure, manage and monitor multiple storage subsystems at local or remote locations. The “Install Once, Run Anywhere” convenience saves time and ensures continuous operation. With WAN/LAN support an operator can manage multiple Bosch DVSA from a single workstation.

Note:

The DVA-12T iSCSI disk array provides a bandwidth of 200 Mbit/s and 48 concurrent iSCSI sessions. The usable net capacity is approx. 7600 GB (RAID 5 configuration without a hot spare).

Technical Specifications

Electrical

Model No.	No. of Hard Drives	Voltage Range	Operating Power*
DVA-12T-04100RA	4x 1 TB	120/240 VAC 50/60 Hz	350 W (1197 BTU/hour)
DVA-12T-12100RA	12x 1 TB	120/240 VAC 50/60 Hz	350 W (1197 BTU/hour)

*Power is based on the unit's maximum operating conditions.

Peak Current 6 A / 115 VAC or 3 A / 230 VAC

Accessories

Required every year (1 pre-installed in the array)

Battery backup DVA-SBBK-00A

The DVSA includes a controller board, power supply, and a specified number of hard disks. Additional accessories are optional, for redundancy, hot spare or installation. For installation into a rack, a slider rail must be used.

Item	Type #
Hard Disk assembly (1 TB)	DVA-ADTK-100A
Power supply	DVA-SPKK-08A
Fan module	DVA-SFAK-08A

iSCSI to SATA-II controller, 2x 1GB Ethernet Host Channels, 1GB DDR RAM

DVA-SCIK-12A

Slider rail for cabinet 533 mm – 724 mm

DVA-ASRK-28A

Slider rail for cabinet 647 mm – 900 mm

DVA-ASRK-36A

Compatible Bosch Video Servers

VIP X Series Video Encoders

Dinion IP cameras

G4 Auto Dome

Mechanical

Connectors

Power	IEC Male
RS-232 (Serial) Port	Audio Jack, for upgrade and service
Host Ports	Two (2) RJ-45 Gigabit Ethernet Host Channels

Dimensions (WxHxD) 446 x 88 x 490 mm
17.6 x 3.5 x 19.3 inches

Weight 32.5 kg, (71.6 lb) approximate

Environmental

Operating Temperature 0°C to 40°C (32°F to 104°F)

Relative Humidity 5% to 95% non-condensing

Electromagnetic Compatibility (EMC) Complies with FCC and CE Regulations

Product Safety CE, UL, CB, EN and IEC

Warranty (excl battery) 3 years

Warranty battery back-up unit 1 year

Ordering Information

DVA-12T-04100RA iSCSI Diskarray 12-bay **DVA-12T-04100RA**
4 HDD, 4 TB

DVA-12T-12100RA iSCSI Diskarray 12-bay **DVA-12T-12100RA**
12 HDD, 12 TB

Accessories

DVA-ADTK-100A Diskarray HDD expansion, 1 TB **DVA-ADTK-100A**

DVA-SPKK-08A PSU **DVA-SPKK-08A**
for 8-bay Premium Diskarray, 350 W

DVA-SFAK-08A Diskarray Fan Module **DVA-SFAK-08A**
for 8- and 12-bay

DVA-SCIK-12A iSCSI Diskarray Controller **DVA-SCIK-12A**

DVA-ASRK-28A Diskarray Cabinet Slider **DVA-ASRK-28A**
for DVA-08 and DVA-12, 533 mm - 724 mm/
21 in. - 28.5 in.

DVA-ASRK-36A Diskarray Cabinet Slider **DVA-ASRK-36A**
for DVA-08 and DVA-12, 647 mm - 914 mm/
25.5 in. - 36 in.

DSA-N2B20 iSCSI Disk Array Series



Features

- ▶ **Scale-out network storage solution: base unit with up to four disk shelf expansion units**
- ▶ **Configurable RAID-4 or RAID-DP (Double Parity) data protection**
- ▶ **Redundant hot-swappable power supplies and cooling fans**
- ▶ **Two Gigabit Ethernet ports for high speed iSCSI connectivity**
- ▶ **Modular design for ease of service**
- ▶ **Central management through Web-based GUI**

The DSDA iSCSI series represent the second generation of Bosch Digital Video Disk Arrays and are designed for the security industries most demanding digital video storage applications to manage the relentlessly growing digital video data.

Functions

The DSA-N2B20 is the co-branded FAS Series FAS 2020 from NetApp which provides a scale-out network storage solution that provides security, high “in-the-box” scalability, peace-of-mind data protection, and simplified management of all your video data. NetApp’s FAS Series are based on a 15-year enterprise proven and well tested OS—Data ONTAP. NetApp pioneered the iSCSI protocol years ago and remains the market leader.

Designed as a scale-out system, the DSA-N2B20 allows connecting up to four disk shelf expansion units to one base unit. The base unit provides a maximum of 12 x 1 TB SATA-II hard disk drives and each disk shelf expansion unit will provide a maximum of 14 x 1 TB hard disk drives.

The DSA-N2B20 is a fully featured RAID protected disk array which provides RAID-4 protection for capacity-oriented environments and RAID-DP protection for availability oriented environments. RAID-DP (Double Parity) is a form of RAID-6 without any performance penalty. RAID-DP is strongly recommended if the system will be used with disk shelf expansion units.

High Reliability and Availability

With redundant hot-swap power and cooling, dual Gigabit Ethernet ports, NVRAM, and protection from double-disk failure and single bit errors during RAID rebuilds with RAID-DP, the DSA-N2B20 keeps your data safe and available.

Monitoring

Full SNMP support with agents compatible with SNMP version 1 as well as MIB-II and NetApp custom MIBs supported. In case of component failures SNMP, e-mails (Autosupport Mails) or HTTP (HTTPS) messages will be generated.

Features

The intelligent combination of battery backed up nonvolatile RAM (NVRAM), the NetApp RAID-DP technology and the Write Anywhere File Layout (WAFL) all contribute to data reliability and recoverability and provide superior system performance.

The RAID-4 or the RAID-DP protection allows for capacity expansion on the fly, with no RAID rebuilt or interruption to users. This is getting more and more important as HDD capacities are getting bigger and bigger.

All Bosch NetApp systems come with a 3 years Next Business Day Parts Delivery warranty and with a 3 years software warranty.

Installation/Configuration Notes

Central management is provided by a Web GUI administration tool. There is no additional software necessary to be installed on peripheral devices.

In addition the system provides a powerful Command Line Interface (CLI) which is fully remote accessible either by telnet, ssh or rsh. The co-branded Bosch NetApp DSA-N2B20 comes with the Data ONTAP 7.3.1P1D9 OS version.

The DSA-N2B20 provides a maximum bandwidth of 250 Mbps with a maximum of 128 concurrent iSCSI connections.

The net capacity available is shown in the following table.

Configuration information (RAID-4)	Net capacity (GB)
------------------------------------	-------------------

- | | |
|------------------------------|------|
| 1 x FAS 2020 base unit | |
| • with 6 x 1 TB SATA-II HDD | 3167 |
| • with 12 x 1 TB SATA-II HDD | 6968 |

Configuration information (RAID-DP)	Net capacity (GB)
-------------------------------------	-------------------

- | | |
|----------------------------|-------|
| 1 x FAS 2020 base unit | 6334 |
| 1 x FAS 2020 base unit | |
| • plus 1 x extension shelf | 13935 |
| • plus 2 x extension shelf | 21536 |
| 1 x extension shelf | 7601 |

If a base unit plus a disk shelf expansion unit is ordered, the technical specifications given below simply add.



Technical Specifications

Base Unit—DSA-N2B20-12AT

Electrical requirements—one controller module

Input voltage: 100 to 120 V	Worst case, single PSU	System, two PSUs
• input current measured	3.37 A	3.22 A
• input power measured	332 W	316 W
• thermal dissipation	1133 BTU/h	1077 BTU/h
Input voltage: 200 to 240 V	Worst case, single PSU	System, two PSUs
• input current measured	1.69 A	1.66 A
• input power measured	327 W	305 W
• thermal dissipation	1114 BTU/h	1039 BTU/h
Input power frequency	50 to 60 Hz	50 to 60 Hz

System hardware specifications

Chassis	2U, 19"-rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	12 x 1 TB SATA-II drives
Max net capacity	~7000 GB (RAID-4 configuration)
DDR2 memory (system RAM)	1024 MB
Nonvolatile SDRAM (NVRAM)	256 MB—protects "in flight" transactions for 3 days in the event of a power loss
Integrated I/O	2 x 10/100/1000 Gigabit Ethernet, copper
Remote management (via LAN)	Yes

Mechanical

Dimensions (H x W x D)	89 x 447 x 572 mm (3.5 x 17.6 x 22.5 in)
Weight	27.215 kg (60 lb), full

Space requirements

Front—cooling	152 mm (6 in)
Rear—cooling	305 mm (12 in)
Front of chassis—maintenance	762 mm (30 in)
Rear of chassis—maintenance	915 mm (36 in)

Environmental

Operating temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Non-operating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80%, non-condensing
Acoustic level	N/A

Disk Shelf Expansion Unit—DSX-N2X00-14AT

Electrical requirements

Input voltage: 100 to 120 V	Worst case, single PSU	System, two PSUs
• input current measured	3.42 A	3.22 A
• input power measured	341 W	321 W
• thermal dissipation	1163 BTU/h	1095 BTU/h
Input voltage: 200 to 240 V	Worst case, single PSU	System, two PSUs
• input current measured	1.63 A	1.60 A
• input power measured	323 W	309 W
• thermal dissipation	1103 BTU/h	1054 BTU/h
Input power frequency	50 to 60 Hz	50 to 60 Hz

System hardware specifications

Chassis	3U, 19"-rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	14 x 1 TB SATA-II drives
Max net capacity	~7600 GB
Shelf connectivity	Fibre Channel: <ul style="list-style-type: none"> • copper • fiber

Mechanical

Dimensions (H x W x D)	113 x 447 x 552 mm (5.25 x 17.6 x 22 in)
Weight	30.8 kg (68 lb), fully loaded

Space requirements

Front—cooling	153 mm (6 in)
Rear—cooling	305 mm (12 in)
Front of chassis—maintenance	559 mm (22 in)
Rear of chassis—maintenance	305 mm (12 in)

Environmental

Operating temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Non-operating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80%, non-condensing
Acoustic level	58 dBA at +23 °C

Notes:

- General technical specifications for the RAID system are provided in the NetApp Site Requirements Guide (Part number 215-04823_A0, August 2009) and on <http://www.netapp.com/us/products/storage-systems/fas2000/fas2000-tech-specs.html> (last access September 17, 2009).

NetApp is a registered trademark of NetApp; RAID-DP and Data ONTAP are trademarks of NetApp, all rights reserved. All data and dimensions are referenced from the NetApp Site Requirements Guide and from the NetApp Website and are subject to change without notice.

Ordering Information

DSA-N2B20-06AT Base unit with 6 x 1 TB SATA hard disk	DSA-N2B20-06AT
DSA-N2B20-12AT Base unit with 12 x 1 TB SATA hard disk	DSA-N2B20-12AT
DSA-N2B20-26AT Base unit plus 1 disk shelf expansion unit with 12 x 1000 GB, 14 x 750 GB	DSA-N2B20-26AT
DSA-N2B20-40AT Base unit plus 2 x disk shelf expansion with 12 x 1000 GB, 28 x 750 GB	DSA-N2B20-40AT
DSX-N2X00-14AT Shelf expansion unit, 14 x 1 TB hard disk	DSX-N2X00-14AT
DSA-NDTK-100A 1 TB hard disk drive	DSA-NDTK-100A
DSA-NDTK-075A 750 GB hard disk drive	DSA-NDTK-075A

DSA-N2B40 iSCSI Disk Array Series



Features

- ▶ **Scale-out network storage solution: base unit with up to six disk shelf expansion units**
- ▶ **Configurable RAID-4 or RAID-DP (Double Parity) data protection**
- ▶ **Redundant hot-swappable power supplies and cooling fans**
- ▶ **Four Gigabit Ethernet ports for high speed iSCSI connectivity**
- ▶ **Modular design for ease of service**
- ▶ **Central management through Web-based GUI**

The DSDA iSCSI series represent the second generation of Bosch Digital Video Disk Arrays and are designed for the security industries most demanding digital video storage applications to manage the relentlessly growing digital video data.

The DSA-N2B40 provides the utmost scalability and performance within the Bosch iSCSI disk array portfolio.

Functions

The DSA-N2B40 is the co-branded FAS Series FAS 2040 from NetApp which provides a scale-out network storage solution that provides security, high “in-the-box” scalability, peace-of-mind data protection, and simplified management of all your video data. NetApp’s FAS Series are based on a 16-year enterprise proven and well tested OS—Data ONTAP. NetApp pioneered the iSCSI protocol years ago and remains the market leader.

Designed as a scale-out system, the DSA-N2B40 allows connecting up to six disk shelf expansion units to one base unit. The base unit provides a maximum of 12 x 1 TB SATA-II hard disk drives and each disk shelf expansion unit will provide a maximum of 14 x 1 TB hard disk drives.

The DSA-N2B40 is a fully featured RAID protected disk array which provides RAID-4 protection for capacity-oriented environments and RAID-DP protection for availability oriented environments. RAID-DP (Double Parity) is a form of RAID-6 without any performance penalty. RAID-DP is strongly recommended if the system will be used with disk shelf expansion units.

High Reliability and Availability

With redundant hot-swap power and cooling, four Gigabit Ethernet ports, NVRAM, and protection from double-disk failure and single bit errors during RAID rebuilds with RAID-DP, the DSA-N2B40 keeps your data safe and available.

Monitoring

Full SNMP support with agents compatible with SNMP version 1 as well as MIB-II and NetApp custom MIBs supported. In case of component failures SNMP, e-mails (Autosupport Mails) or HTTP (HTTPS) messages will be generated.

Features

The intelligent combination of battery backed up nonvolatile RAM (NVRAM), the NetApp RAID-DP technology and the Write Anywhere File Layout (WAFL) all contribute to data reliability and recoverability and provide superior system performance.

The RAID-4 or the RAID-DP protection allows for capacity expansion on the fly, with no RAID rebuilt or interruption to users. This is getting more and more important as HDD capacities are getting bigger and bigger.

All Bosch NetApp systems come with a 3 years Next Business Day Parts Delivery warranty and with a 3 years software warranty.

Certifications and Approvals

Region	Certification	
Europe	CE	DSA-N2B40
Global	RoHS	DSA-N2B40
	CB	DSA-N2B40
Russia	GOST	DSA-N2B40
USA	UL	DSA-N2B40
Australia	CTICK	DSA-N2B40
Canada	CSA	DSA-N2B40
China	BSMI-DoC	DSA-N2B40
Japan	VCCI	DSA-N2B40
Argentina	IRAM	DSA-N2B40
South Africa	SABS	DSA-N2B40
Nigeria	SONCAP	DSA-N2B40
Korea	KCC	DSA-N2B40

Installation/Configuration Notes

Central management is provided by a Web GUI administration tool. There is no additional software necessary to be installed on peripheral devices.

In addition the system provides a powerful Command Line Interface (CLI) which is fully remote accessible either by telnet, ssh or rsh. The co-branded Bosch NetApp DSA-N2B40 comes with the Data ONTAP 7.3.2P3 OS version.

The DSA-N2B40 provides a maximum bandwidth of 400 Mbps with a maximum of 256 concurrent iSCSI connections.

The net capacity available is shown in the following table.

Configuration information (RAID-4)	Net capacity (GB)
------------------------------------	-------------------

1 x FAS 2040 base unit	6968
------------------------	------

Configuration information (RAID-DP)	Net capacity (GB)
-------------------------------------	-------------------

1 x FAS 2040 base unit	6334
------------------------	------

1 x FAS 2040 base unit	
• plus 1 x extension shelf	13935
• plus 2 x extension shelf	21536
• plus 4 x extension shelf	36738
• plus 6 x extension shelf	51940
1 x extension shelf	7601

If a base unit plus a disk shelf expansion unit is ordered, the technical specifications given below simply add.



Technical Specifications

Base Unit—DSA-N2B40-12AT

Electrical requirements—one controller module

Input voltage: 100 to 120 V	Worst case, single PSU	System, two PSUs
• input current measured	3.62 A	3.53 A
• input power measured	357 W	345 W
• thermal dissipation	1217 BTU/h	1177 BTU/h

Electrical requirements—one controller module

Input voltage: 200 to 240 V	Worst case, single PSU	System, two PSUs
• input current measured	1.81 A	1.8 A
• input power measured	347 W	337 W
• thermal dissipation	1183 BTU/h	1149 BTU/h
Input power frequency	50 to 60 Hz	50 to 60 Hz

System hardware specifications

Chassis	87.6 mm (3.45"), fits into 2U space, 19" IEC rack-compliant (449 mm, 17.6")
Power supplies	Dual redundant, hot pluggable
Max disk drives	12 x 1 TB SATA-II drives
Max net capacity	~7000 GB (RAID-4 configuration)
DDR2 memory (system RAM)	4096 MB
Nonvolatile SDRAM (NVRAM)	256 MB—protects "in flight" transactions for 3 days in the event of a power loss
Integrated I/O	4 x 10/100/1000 Gigabit Ethernet, copper
Remote management (via LAN)	Yes

Mechanical

Dimensions (H x W x D)	89 x 447 x 572 mm (3.5 x 17.6 x 22.5 in)
Weight	27.215 kg (60 lb), full

Space requirements

Front—cooling	152 mm (6 in)
Rear—cooling	305 mm (12 in)
Front of chassis—maintenance	762 mm (30 in)
Rear of chassis—maintenance	914 mm (36 in)

Environmental

Operating temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Non-operating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80%, non-condensing
Acoustic level	N/A

Disk Shelf Expansion Unit—DSX-N2X00-14AT

Electrical requirements

Input voltage: 100 to 120 V	Worst case, single PSU	System, two PSUs
• input current measured	3.42 A	3.22 A
• input power measured	341 W	321 W
• thermal dissipation	1163 BTU/h	1095 BTU/h

Electrical requirements

Input voltage: 200 to 240 V	Worst case, single PSU	System, two PSUs
• input current measured	1.63 A	1.60 A
• input power measured	323 W	309 W
• thermal dissipation	1103 BTU/h	1054 BTU/h
Input power frequency	50 to 60 Hz	50 to 60 Hz

System hardware specifications

Chassis	3U, 19"-rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	14 x 1 TB SATA-II drives
Max net capacity	~7600 GB
Shelf connectivity	Fibre Channel: <ul style="list-style-type: none"> • copper • fiber

Mechanical

Dimensions (H x W x D)	113 x 447 x 552 mm (5.25 x 17.6 x 22 in)
Weight	30.8 kg (68 lb), fully loaded

Space requirements

Front-cooling	153 mm (6 in)
Rear-cooling	305 mm (12 in)
Front of chassis-maintenance	559 mm (25 in)
Rear of chassis-maintenance	305 mm (12 in)

Environmental

Operating temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Non-operating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80%, non-condensing
Acoustic level	58 dBA at +23 °C

Notes:

- General technical specifications for the RAID system are provided in the NetApp Site Requirements Guide (Part number 215-04823_A0, August 2009) and on <http://www.netapp.com/us/products/storage-systems/fas2000/fas2000-tech-specs.html> (last access September 17, 2009).

NetApp is a registered trademark of NetApp; RAID-DP and Data ONTAP are trademarks of NetApp, all rights reserved. All data and dimensions are referenced from the NetApp Site Requirements Guide and from the NetApp Website and are subject to change without notice.

Ordering Information

DSA-N2B40-12AT Base unit with 12 x 1 TB SATA hard disk	DSA-N2B40-12AT
DSX-N2X00-14AT Shelf expansion unit, 14 x 1 TB hard disk	DSX-N2X00-14AT
DSA-NDTK-100A 1 TB hard disk drive	DSA-NDTK-100A
DSA-N2B40-AUG Second controller upgrade	DSA-N2B40-AUG
DSX-N2X00-14AT Shelf expansion unit, 14 x 1 TB hard disk	DSX-N2X00-14AT

DSA-N2B50 iSCSI Disk Array Series



Features

- ▶ **Scale-out network storage solution: base unit with up to six disk shelf expansion units**
- ▶ **RAID-DP (Double Parity) data protection**
- ▶ **Redundant hot-swappable power supplies and cooling fans**
- ▶ **Two Gigabit Ethernet ports for high speed iSCSI connectivity**
- ▶ **Modular design for ease of service**
- ▶ **Central management through Web-based GUI**

The DSDA iSCSI series represent the second generation of Bosch Digital Video Disk Arrays and are designed for the security industries most demanding digital video storage applications to manage the relentlessly growing digital video data.

Functions

The DSA-N2B50 is the co-branded FAS Series FAS 2050 from NetApp which provides a scale-out network storage solution that provides security, highest “in-the-box” scalability, peace-of-mind data protection, and simplified management of all your video data. NetApp’s FAS Series are based on a 15-year enterprise proven and well tested OS—Data ONTAP. NetApp pioneered the iSCSI protocol years ago and remains the market leader.

Designed as a scale-out system, the DSA-N2B50 allows connecting up to six disk shelf expansion units to one base unit. The base unit provides a maximum of 20 x 1 TB SATA-II hard disk drives and each disk shelf expansion unit will provide a maximum of 14 x 1 TB hard disk drives.

The DSA-N2B50 is a fully featured RAID protected disk array which provides advanced RAID-DP protection for highest data availability. RAID-DP (Double Parity) is a form of RAID-6 without any performance penalty.

High Reliability and Availability

With redundant hot-swap power and cooling, dual Gigabit Ethernet ports, NVRAM, and protection from double-disk failure and single bit errors during RAID rebuilds with RAID-DP, the DSA-N2B50 keeps your data safe and available.

Monitoring

Full SNMP support with agents compatible with SNMP version 1 as well as MIB-II and NetApp custom MIBs supported. In case of component failures SNMP, e-mails (Autosupport Mails) or HTTP (HTTPS) messages will be generated.

Features

The intelligent combination of battery backed up nonvolatile RAM (NVRAM), the NetApp RAID-DP technology and the Write Anywhere File Layout (WAFL) all contribute to data reliability and recoverability and provide superior system performance.

The RAID-DP protection allows for capacity expansion on the fly, with no RAID rebuilt or interruption to users. This is getting more and more important as HDD capacities are getting bigger and bigger.

Installation/Configuration Notes

Central management is provided by a Web GUI administration tool. There is no additional software necessary to be installed on peripheral devices.

In addition the system provides a powerful Command Line Interface (CLI) which is fully remote accessible either by telnet, ssh or rsh.

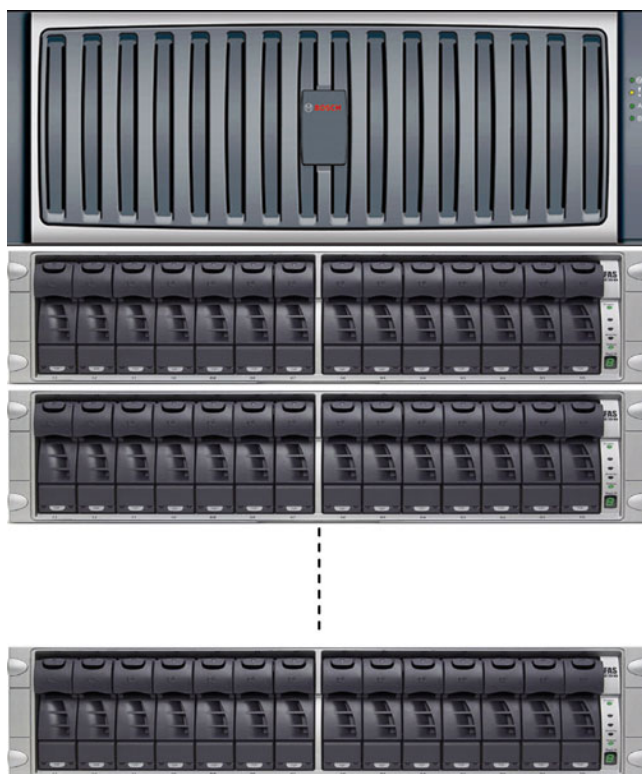
The DSA-N2B50 provides a maximum bandwidth of 300 Mbps with a maximum of 128 concurrent iSCSI connections.

The net capacity available is shown in the following table.

Configuration information	Net capacity (GB)
1 x FAS 2050 base unit	11402
1 x FAS 2050 base unit	
• plus 1 x extension shelf	19003
• plus 2 x extension shelf	26604
• plus 3 x extension shelf	34205
• plus 4 x extension shelf	41806
• plus 5 x extension shelf	49407
• plus 6 x extension shelf	57008
1 x extension shelf	7601

If a base unit plus a disk shelf expansion unit is ordered, the technical specifications given below simply add.

The disk array may be expanded by two additional Gigabit Ethernet ports—Dual Port GbE PCI-e board (available only on a project base).



Technical Specifications

Base Unit—DSA-N2B50-20AT

Electrical requirements—one controller module

Input voltage: 100 to 120 V	Worst case, single PSU	System, two PSUs
• input current measured	5.07 A	4.51 A
• input power measured	504 W	439 W
• thermal dissipation	1718 BTU/h	1497 BTU/h
Input voltage: 200 to 240 V	Worst case, single PSU	System, two PSUs
• input current measured	2.46 A	2.40 A
• input power measured	474 W	447 W
• thermal dissipation	1617 BTU/h	1523 BTU/h
Input power frequency	50 to 60 Hz	50 to 60 Hz

System hardware specifications

Chassis	4U, 19"-rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	20 x 1 TB SATA-II drives
Max net capacity	~11400 GB
DDR2 memory (system RAM)	2048 MB

System hardware specifications

Nonvolatile SDRAM (NVRAM)	256 MB—protects “in flight” transactions for 3 days in the event of a power loss
Integrated I/O	2 x 10/100/1000 Gigabit Ethernet, copper
Remote management (via LAN)	Yes

Mechanical

Dimensions (H x W x D)	175 x 447 x 572 mm (6.9 x 17.6 x 22.5 in)
Weight	49.895 kg (110 lb)

Space requirements

Front—cooling	152 mm (6 in)
Rear—cooling	305 mm (12 in)
Front of chassis—maintenance	762 mm (30 in)
Rear of chassis—maintenance	914 mm (36 in)

Environmental

Operating temperature	+10 °C to +40 °C (+50 °F to +104 °F)
Non-operating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80%, non-condensing
Acoustic level	66 dBA at +23 °C 6.6 bels at +23 °C

Disk Shelf Expansion Unit—DSX-N2X00-14AT

Electrical requirements

Input voltage: 100 to 120 V	Worst case, single PSU	System, two PSUs
• input current measured	3.42 A	3.22 A
• input power measured	341 W	321 W
• thermal dissipation	1163 BTU/h	1095 BTU/h
Input voltage: 200 to 240 V	Worst case, single PSU	System, two PSUs
• input current measured	1.63 A	1.60 A
• input power measured	323 W	309 W
• thermal dissipation	1103 BTU/h	1054 BTU/h
Input power frequency	50 to 60 Hz	50 to 60 Hz

System hardware specifications

Chassis	3U, 19"-rack-mountable
Power supplies	Dual redundant, hot pluggable
Max disk drives	14 x 1 TB SATA-II drives
Max net capacity	~7600 GB
Shelf connectivity	Fibre Channel: <ul style="list-style-type: none"> • copper • fiber

Mechanical

Dimensions (H x W x D)	113 x 447 x 552 mm (5.25 x 17.6 x 22 in)
Weight	30.8 kg (68 lb), fully loaded

Space requirements

Front-cooling	153 mm (6 in)
Rear-cooling	305 mm (12 in)
Front of chassis-maintenance	559 mm (25 in)
Rear of chassis-maintenance	305 mm (12 in)

Environmental

Operating temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Non-operating temperature	-40 °C to +60 °C (-40 °F to +140 °F)
Relative humidity	20 to 80%, non-condensing
Acoustic level	58 dBA at +23 °C

Notes:

- General technical specifications for the RAID system are provided in the NetApp Site Requirements Guide (Part number 215-04823_A0, August 2009) and on <http://www.netapp.com/us/products/storage-systems/fas2000/fas2000-tech-specs.html> (last access September 17, 2009).

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Ordering Information

DSA-N2B50-34AT Base unit plus 1 disk shelf expansion unit with 34 x 750 GB SATA hard disk	DSA-N2B50-34AT
DSA-N2B50-48AT Base unit plus 2 x disk shelf expansion with 48 x 750 GB SATA hard disk	DSA-N2B50-48AT
DSA-N2B50-62AT Base unit plus 3 x disk shelf expansion with 62 x 750 GB SATA hard disk	DSA-N2B50-62AT
DSA-N2B50-76AT Base unit plus 4 x disk shelf expansion with 76 x 750 GB SATA hard disk	DSA-N2B50-76AT
DSA-N2B50-90AT Base unit plus 5 x disk shelf expansion with 90 x 750 GB SATA hard disk	DSA-N2B50-90AT
DSA-N2B50-104AT Base unit plus 6 x disk shelf expansion with 104 x 750 GB SATA hard disk	DSA-N2B50-104AT
DSX-N2X00-14AT Shelf expansion unit, 14 x 1 TB hard disk	DSX-N2X00-14AT
DSA-NDTK-075A 750 GB hard disk drive	DSA-NDTK-075A

VIP X1 XF Single-channel Video Encoder



Features

- ▶ **Single-channel H.264 encoder with Dual Streaming**
- ▶ **Built-in analytics VCA**
- ▶ **SD card and iSCSI recording**
- ▶ **Ultra-compact size**
- ▶ **Multicast and Internet streaming**
- ▶ **Alarm inputs and relay outputs**
- ▶ **ONVIF conformant**

VIP X1 XF features DVD-like quality H.264 video, at up to 25/30 images per second, over IP networks. This unit supports PAL and NTSC sources. It is available in a standard version that supports Bosch VCA algorithms.

The encoder provides bidirectional audio communication in parallel to video.

VIP X1 XF provides Dual Streaming. It is able to generate two independently configurable video streams. VIP X1 XF is ultra-compact, so it is perfect for any application that depends on space-saving solutions.

Functions

Flexibility

VIP X1 XF encoders offer unparalleled recording flexibility. Record on network-attached RAID iSCSI storage devices or locally on SD cards. The built-in iSCSI support enables VIP X1 XF encoders to act as conventional DVRs while streaming high-performance live video across the network.

Dual Streaming

VIP X1 XF encoders use Dual Streaming to generate two independent IP video streams per channel if sufficient computational power is available. This allows viewing and recording at two different quality levels to save disk space and bandwidth. On alarm, they can send an e-mail with JPEG images attached.

Dual H.264 Recording

You can record the streams independently on different media. Thus video can be recorded centrally on iSCSI drives managed by VRM Video Recording Manager and redundantly on the local media. If necessary, for example in case of a network failure VRM can fill up the gap in the central recording (ANR, Automatic Network Replenishment).

Recording Profiles

The encoders feature a highly flexible recording scheduler, providing up to ten programmable recording profiles and allowing individually assigned camera profiles. With these profiles, you can accelerate the frame rate as well as increase the resolution on alarm, saving recording space during non-alarm periods.

Access Security

VIP X1 XF encoders offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

Intelligence

With built-in video content analysis, VIP X1 XF encoders reinforce the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. This VIP-X1XF comes with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper detection capabilities.

Bosch offers more advanced video content analysis (VCA) applications with its Intelligent Video Analysis (IVA). A licensable option, it bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixel, texture, and motion (trajectory) changes.

Viewing

View VIP X1 XF encoder video on a PC using a Web browser, in the Bosch Video Management System, or integrate it into another video management system. By routing the IP video to a high-performance VIP XD video decoder or a VIP X1600 XF decoder module, you can present the video with ultimate clarity.

Easy Upgrade

Remotely upgrade VIP X1 XF encoders whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

ONVIF conformance

Firmware 4.10 introduces conformance to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

Certifications and Approvals**Approvals**

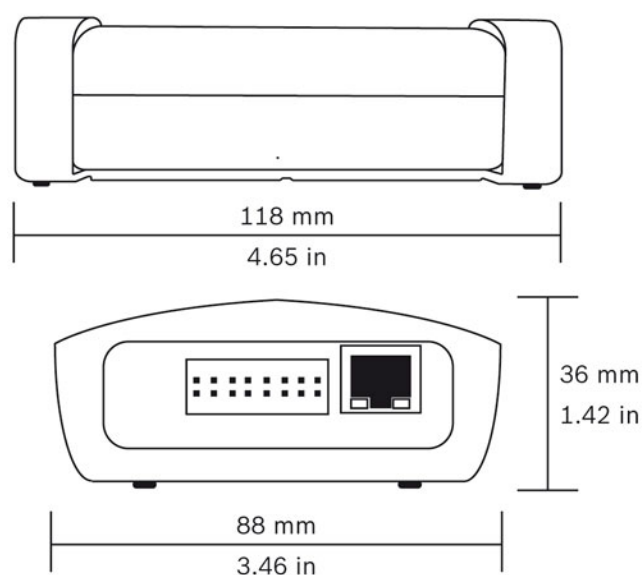
Region	Certification	
Europe	CE	VIP X1 XF
USA	UL	Bosch UL online certifications directory (link)

Safety

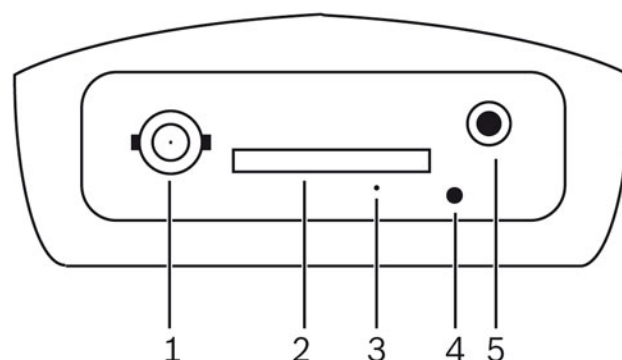
Region	Number
	IEC 60950-1

Electromagnetic Compatibility

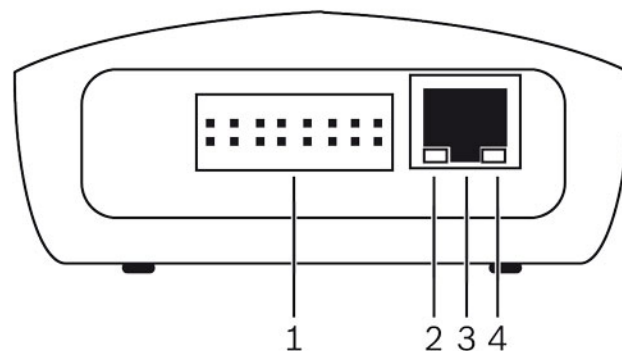
Region	Number
EU	EN 55103-1 Video and audio equipment
	EN 50130-4 Alarm systems
	EN 50121-4 Railway
	EN 55022
	EN 55024
	EN 61000-3-2
	EN 61000-3-3
USA	FCC 47 CFR Part15 SubpartB ClassB
Australia/New Zealand	AS/NZS 3548 ClassB

Installation/Configuration Notes

Dimensions in mm (inches)

Front Connectors and Indicators

- | | |
|------------------------|----------------------------|
| 1 VIDEO IN | 4 POWER LED |
| 2 SD CARD slot | 5 LINE IN/OUT audio |
| 3 Factory reset button | |

Rear Connectors and Indicators

- | | |
|--|-------------------------------|
| 1 Alarm in, relay out, power, COM (RS-232/422/485) | 3 10/100 Base-T Fast Ethernet |
| 2 LED Link | 4 LED Traffic |

Parts Included

Quantity	Component
1	VIP-X1XF single-channel video/audio encoder
1	Quick Installation Guide
1	CD-ROM with software and documentation
1	Wall-mounting panel

Technical Specifications**Electrical**

Power supply	Via external unit
Input voltage	9 to 30 VDC
Power consumption	Approx. 5 VA

Input/output

Video	1 x input
• connector	BNC
• impedance	75 ohm, switchable
• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
Audio	1 x mono line in, 1 x mono line out
• connector	3.5 mm stereo jack
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kohm typical, 2.3 Vpp at 32 ohm typical, 1.7 Vpp at 16 ohm typical
Alarm	2 x input
• connector	Clamp (non-isolated closing contact)
• activation resistance	10 ohm max
Relay	2 x output
• connector	Clamp
• signal	30 Vpp (SELV), 0.2 A
COM port	Clamp, RS-232/422/485

Video

Standards	H.264 (ISO/IEC 14496-10), M-JPEG, JPEG
Data rates	9.6 kbps to 6 Mbps
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF	704 x 576/480 (25/30 ips)
• CIF	352 x 288/240 (25/30 ips)
GOP structure	I, IP
Overall IP delay	240 ms max
Frame rate	1 to 50/60 (PAL/NTSC)

Audio

Standard G.711	300 Hz to 3.4 kHz at 8 kHz sampling rate
L16 Audio *	300 Hz to 6.4 kHz at 16 kHz sampling rate
Signal-to-noise ratio	> 50 dB

* FW 4.1—live only; FW 4.5 and better—live and recording

Network

Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, RTSP, 802.1x, iSCSI, DynDNS, UPnP
Encryption	TLS 1.0, SSL, AES (license option)

Control

Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser

Connections

SD card interface	1 x SD card
-------------------	-------------

Mechanical

Dimensions (H x W x D)	36 x 88 x 118 mm (1.42 x 3.46 x 4.65 in)
Weight	Approx. 0.25 kg (0.55 lb)

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F) ambient temperature
Relative humidity	0 to 95% atmospheric humidity, non-condensing
Thermal value	17 BTU/h max

Ordering Information

VIP-X1XF H.264 dual-stream 1-channel encoder, VCA ready	VIP-X1XF
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Accessories

VIP-X1XF-PSU VIP X1 XF power supply	VIP-X1XF-PSU
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Software Options

MVC-FIVA4-ENC1 IVA 4.0 VCA software license for single channel encoder (e-license)	MVC-FIVA4-ENC1
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.	MVC-FENC-AES

VideoJet X10/X20/X40 Rugged Video Encoder



Features

- ▶ **Ruggedized for extended environmental conditions**
- ▶ **High-quality MPEG-4 video over IP**
- ▶ **H.264 Baseline Profile encoding**
- ▶ **Units with one, two, or four video inputs**
- ▶ **Built-in Intelligence-at-the-Edge**
- ▶ **Network-attached RAID storage via iSCSI**
- ▶ **ONVIF conformant**

The Bosch VideoJet X encoders belong to a family of industrial, high-performance, single-, dual-, or quad-input CCTV video encoders. They are built into a rugged housing and constructed to withstand extreme environmental conditions. The VideoJet X encoders may be used at extreme temperatures, operating from -30 °C to +60 °C (-22 °F to +140 °F). These powerful and flexible devices represent the cutting edge of high-performance Video-over-IP for CCTV today.

Functions

Rugged Environments

VideoJet X encoders are ideal for outdoor applications such as perimeter, border, and fence control, as well as for industrial applications where they are tolerant of harsh environments.

When used at remote locations you benefit from their wide 10 to 30 VDC power input range, so that they can be battery or solar powered. You also benefit from their SFP (small form-factor pluggable) slot that allows a direct connection to a fiber interface module without the need for external fiber hardware.

Their industrial-grade vibration resistance makes these encoders extremely suitable for use in mobile applications such as trains, busses, or other vehicles.

Flexibility

VideoJet X encoders offer unparalleled recording flexibility. Stream video across the network and store it using Network Video Recorders (NVRs). Record locally on CompactFlash, an external USB hard drive, or use an optional automotive-grade internal hard drive. Network-attached RAID iSCSI storage devices can also be used. The built-in iSCSI support enables the VideoJet X encoders to act as conventional DVRs while streaming high-performance live video across the network.

Dual Streaming

The VideoJet X encoders use Dual Streaming to generate two independent IP video streams per channel if sufficient computational power is available. This allows viewing and recording at two different quality levels to save disk space and bandwidth. On alarm, they can send an e-mail with JPEG images attached.

Dual Recording

You can record the streams independently on different media. Thus video can be recorded centrally on iSCSI drives managed by VRM Video Recording Manager and redundantly on the local media. If necessary, for example in case of a network failure VRM can fill up the gap in the central recording (ANR, Automatic Network Replenishment).

Recording Profiles

The encoders feature a highly flexible recording scheduler, providing up to ten programmable recording profiles and allowing individually assigned camera profiles. With these profiles, you can accelerate the frame rate as well as increase the resolution on alarm, saving recording space during non-alarm periods.

H.264 Baseline Profile Encoding

Firmware 4.0 enables the Bosch VideoJet X encoders to use H.264 Baseline Profile to encode the video signal. This allows reducing the required bit rate for a given quality setting, or increasing the quality when keeping the bit rate setting.

Frame Rates and Resolution

When one or two inputs are used, the encoders deliver MPEG-4 video over IP at a full frame rate of 25 (PAL) or 30 (NTSC) images per second with up to 4CIF resolution on every channel. If four inputs are used the maximum frame rate is 12.5/15 images per second at 4CIF resolution and no Dual Streaming is possible.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires the double performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

The maximum frame rates listed in the tables below depend on the resolution, picture content and movement, and the number of inputs used.

MPEG-4	4 inputs	2 inputs	1 input
4CIF	12.5/15 ips	25/30 ips	25/30 ips
2/3 D1	25/30 ips	25/30 ips	25/30 ips
2CIF	25/30 ips	25/30 ips	25/30 ips

ips = frame rate in images per second

H.264	4 inputs	2 inputs	1 input
2CIF	12.5/15 ips	25/30 ips	25/30 ips

ips = frame rate in images per second

Reliability

Designed for reliability, the VideoJet X encoders feature a wide temperature range power supply, dual-redundant Ethernet network ports, a third SFP network slot with switching capability between the network ports, dual USB ports, and fault-tolerant mass storage via iSCSI.

Access Security

The VideoJet X encoders offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

Intelligence

With built-in video content analysis, VideoJet X encoders reinforce the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The VideoJet X comes with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper detection capabilities.

Bosch offers more advanced video content analysis (VCA) applications with its Intelligent Video Analysis (IVA). A licensable option, it bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixel, texture, and motion (trajectory) changes.

Viewing

View the VideoJet X encoder video on a PC using a Web browser, in the Bosch Video Management System, or integrate it into another video management system. By routing the IP video to a high-performance VIP XD video decoder or a VIDOS Monitor Wall, you can present the video with ultimate clarity.

Camera control

Configure and control your camera or dome using one of the various pre-defined control protocols. VideoJet X encoders provide a serial interface and alternatively support Bilinx communication over coax cable.

Easy Upgrade

Remotely upgrade the VideoJet X encoders whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

ONVIF conformance

Firmware 4.10 introduces conformance to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

Certifications and Approvals

Approvals

Region	Certification	
Europe	CE	VideoJet X10/X20/X40
USA	UL	VideoJet X10/X20/X40, X40 SN UL online certifications directory (link)

Safety

Region	Number
	IEC 60950

Electromagnetic Compatibility

Region	Number
EU	EN55103-1 Video and audio equipment
	EN50130-4 Alarm systems
	EN55022 ITE
	EN55024 ITE
	EN50121-4 Railway applications
	EN61000-3-2
	EN61000-3-3
AUS/NZ	AS/NZS 3548 Class B
US	FCC 47 CFR Chapter 1 Part 15

Environment

Region	Number
EU	EN60068-2-6 Fc Sinusoidal vibration
	EN60068-2-30 Db Damp heat
	EN60068-2-1 Ab Cold storage
	EN60068-2-2 Bb Hot storage
	EN60068-2-14 Na Change of temperature

Installation/Configuration Notes

VideoJet X encoders have an integrated heat pipe which needs a specific mounting direction to be fully functional. Mount VideoJet X encoders in any direction except with the front (BNC side) pointing upwards.

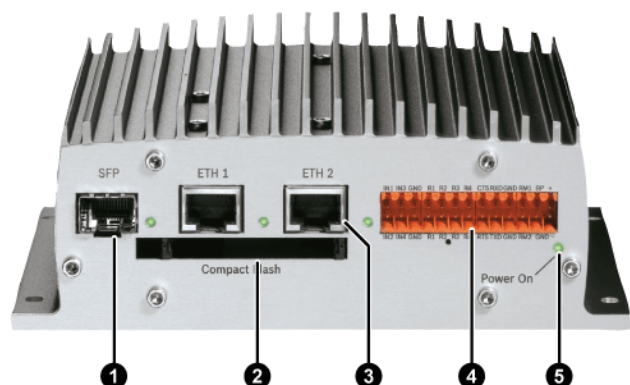
Front Connectors and Indicators



VideoJet X40—front

- 1 USB 1 and 2
- 2 Video input 1 (2, 3, and 4 where applicable)
- 3 2-channel audio input (1-channel for X10)
- 4 1-channel audio output
- 5 LED HDD (only operates on HDD versions)
- 6 LED Connect

Rear Connectors and Indicators



VideoJet X series—rear

- 1 SFP GBIC slot
- 2 Compact Flash slot
- 3 Ethernet 1 and 2
- 4 Alarm input, relay output, serial interface, and power input on separate connector blocks
- 5 LED Power On

Parts Included

Quantity	Component
1	VideoJet X10 encoder with 1 video input, or VideoJet X20 encoder with 2 video inputs, or VideoJet X40 encoder with 4 video inputs
1	Quick Installation Guide
1	CD-ROM with software and documentation
1	Drilling template
1	Set of spring clamp contact connectors

An optional extended temperature range power supply can be ordered separately with power cord versions for the EU/US, UK, and AUS regions.

Technical Specifications

Electrical

Power supply	Via external unit or external battery
Input voltage	10 to 30 VDC
Power consumption	X10: approx. 16 VA, fully equipped X20/X40: approx. 22 VA, fully equipped

Input/output

Video	X10: 1 x input X20: 2 x input X40: 4 x input
• connector	BNC
• impedance	75 ohm, switchable
• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
Audio	X10: 1 x mono line in, 1 x mono line out X20/X40: 2 x mono line in, 1 x mono line out
• connector	2 x 3.5 mm stereo jack
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kohm / 1.7 Vpp at 16 ohm typical
Alarm	4 x input
• connector	Clamp (non-isolated closing contact)
• activation resistance	10 ohm max
Relay	4 x output
• connector	Clamp
• signal	30 Vpp (SELV), 2 A
COM port	Clamp, RS-232/422/485

Video

Standards	H.264 Baseline Profile (ISO/IEC 14496-10) MPEG-4, M-JPEG, JPEG
Data rates	9.6 kbps to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF (MPEG-4 only)	X10/X20: 704 x 576/480 (25/30 ips*) X40: 704 x 576/480 (12.5/15 ips*; all inputs used)
• 2CIF	704 x 288/240 (25/30 ips*)
• 2/3 D1	464 x 576/480 (25/30 ips*)
• 1/2 D1	352 x 576/480 (25/30 ips*)
• CIF	352 x 288/240 (25/30 ips*)
• QCIF	176 x 144/120 (25/30 ips*)
	* Depending on encoding algorithm, picture content and movement
GOP structure	I, IP

Video	
Overall IP delay	120 ms
Frame rate	1 to 50/60 (PAL/NTSC)
Audio	
Standard	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate
Network	
Ethernet	Dual port 10/100 Base-T, auto-sensing, half/full duplex, RJ45
SFP	1 x 1 Gbps SFP (small form-factor pluggable) slot for optional standard SFP GBIC module
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNMP (V1, MIB-II), 802.1x
Encryption	TLS 1.0, SSL, AES (optional)
Control	
Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser
Connections	
CompactFlash	1 x CF slot for optional standard Type I/II CompactFlash memory card
USB ports	2 x USB 2.0 high-speed ports, 2.5 W max feed each
Mechanical	
Dimensions (H x W x D)	61 x 160 x 178 mm (2.4 x 6.3 x 7.01 in)
Weight	Approx. 1.5 kg (3.3 lb) with HDD
Environmental	
Operating temperature	-30 °C to +60 °C (-22 °F to +140 °F) ambient temperature
Relative humidity	0 to 95% atmospheric humidity, non-condensing
Thermal value	X10: 55 BTU/h max, fully equipped X20/X40: 75 BTU/h max, fully equipped
Altitude	X10/X20/X40 with hard disk:
• Operating	-300 m to 5,000 m (-1,000 ft to 16,400 ft)
• Non-operating	-300 m to 12,100 m (-1,000 ft to 40,000 ft)

Ordering Information

VJT-X10S VideoJet X10 with 1 video input	VJT-X10S
VJT-X10S-H008 VideoJet X10 with 1 video input and a 80 GB hard disk	VJT-X10S-H008
VJT-X20S VideoJet X20 with 2 video inputs	VJT-X20S
VJT-X20S-H008 VideoJet X20 with 2 video inputs and a 80 GB hard disk	VJT-X20S-H008
VJT-X40S VideoJet X40 with 4 video inputs	VJT-X40S

Ordering Information

VJT-X40S-H008 VideoJet X40 with 4 video inputs and a 80 GB hard disk	VJT-X40S-H008
Accessories	
VJT-XACC-PS VJX10/20/40 wide-range extended-temperature power supply	VJT-XACC-PS
DVA-12T-04100RA iSCSI Diskarray 12-bay 4 HDD, 4 TB	DVA-12T-04100RA
DVA-12T-12100RA iSCSI Diskarray 12-bay 12 HDD, 12 TB	DVA-12T-12100RA
VJT-XACC-PSUK VJX10/20/40 wide-range extended-temperature power supply for UK	VJT-XACC-PSUK
VJT-XACC-PSAU VJX10/20/40 wide-range extended-temperature power supply for AUS	VJT-XACC-PSAU
DVA-12T-04050RA iSCSI RAID5, 12-bay 1.5 TByte net capacity (4 hard drives installed)	DVA-12T-04050RA
DVA-12T-12050RA iSCSI RAID5, 12-bay 5.5 TByte net capacity (12 hard drives installed)	DVA-12T-12050RA
DSA-N2B20-06AT Base unit with 6 x 1 TB SATA hard disk	DSA-N2B20-06AT
DSA-N2B20-12AT Base unit with 12 x 1 TB SATA hard disk	DSA-N2B20-12AT
Software Options	
MVC-FIVA4-ENC1 IVA 4.0 VCA software license for single channel encoder (e-license)	MVC-FIVA4-ENC1
MVC-FIVA4-ENC2 IVA 4.0 VCA software license for dual channel encoder (e-license)	MVC-FIVA4-ENC2
MVC-FIVA4-ENC4 IVA 4.0 VCA software license for quad channel encoder (e-license)	MVC-FIVA4-ENC4
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.	MVC-FENC-AES

VideoJet X10/X20/X40 SN Video Encoder



Features

- ▶ **High-quality MPEG-4 video over IP**
- ▶ **H.264 Baseline Profile encoding**
- ▶ **Units with one, two, or four video inputs**
- ▶ **Built-in Intelligence-at-the-Edge**
- ▶ **Network-attached RAID storage via iSCSI**
- ▶ **Local recording on CF card or USB hard drive**
- ▶ **ONVIF conformant**

The Bosch VideoJet X SN encoders belong to a family of high-performance, single-, dual-, or quad-input CCTV video encoders that feature DVD-like quality MPEG-4 video, at up to 25/30 images per second, over IP networks. The units support PAL and NTSC sources and provide bidirectional audio communication in parallel to video. They are built into a housing that can be easily wall-mounted or rack-mounted. These powerful and flexible devices represent the cutting edge of high-performance Video-over-IP for CCTV today.

Functions

Flexibility

VideoJet X SN encoders offer unparalleled recording flexibility. Stream video across the network and store it using Network Video Recorders (NVRs). Record locally on CompactFlash, an external USB hard drive, or network-attached RAID iSCSI storage devices. The built-in iSCSI support enables the VideoJet X SN encoders to act as conventional DVRs while streaming high-performance live video across the network.

Dual Streaming

The VideoJet X SN encoders use Dual Streaming to generate two independent IP video streams per channel if sufficient computational power is available. This allows viewing and recording at two different quality levels to save disk space and bandwidth. On alarm, they can send an e-mail with JPEG images attached.

Dual Recording

You can record the streams independently on different media. Thus video can be recorded centrally on iSCSI drives managed by VRM Video Recording Manager and redundantly on the local media. If necessary, for example in case of a network failure VRM can fill up the gap in the central recording (ANR, Automatic Network Replenishment).

Recording Profiles

The encoders feature a highly flexible recording scheduler, providing up to ten programmable recording profiles and allowing individually assigned camera profiles. With these profiles, you can accelerate the frame rate as well as increase the resolution on alarm, saving recording space during non-alarm periods.

H.264 Baseline Profile Encoding

Firmware 4.0 enables the Bosch VideoJet X encoders to use H.264 Baseline Profile to encode the video signal. This allows reducing the required bit rate for a given quality setting, or increasing the quality when keeping the bit rate setting.

Frame Rates and Resolution

When one or two inputs are used, the encoders deliver MPEG-4 video over IP at a full frame rate of 25 (PAL) or 30 (NTSC) images per second with up to 4CIF resolution on every channel. If four inputs are used, the maximum frame rate is 12.5/15 images per second at 4CIF resolution and no Dual Streaming is possible.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires the double performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

The maximum frame rates listed in the tables below depend on the resolution, picture content and movement, and the number of inputs used.

MPEG-4	4 inputs	2 inputs	1 input
4CIF	12.5/15 ips	25/30 ips	25/30 ips
2/3 D1	25/30 ips	25/30 ips	25/30 ips
2CIF	25/30 ips	25/30 ips	25/30 ips

ips = frame rate in images per second

H.264	4 inputs	2 inputs	1 input
2CIF	12.5/15 ips	25/30 ips	25/30 ips

ips = frame rate in images per second

Access Security

The VideoJet X SN encoders offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

Intelligence

With built-in video content analysis, VideoJet X SN encoders reinforce the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The VideoJet X SN comes with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper detection capabilities.

Bosch offers more advanced video content analysis (VCA) applications with its Intelligent Video Analysis (IVA). A licensable option, it bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixel, texture, and motion (trajectory) changes.

Viewing

View the VideoJet X SN encoder video on a PC using a Web browser, in the Bosch Video Management System, or integrate it into another video management system. By routing the IP video to a high-performance VIP XD video decoder or a VIDOS Monitor Wall, you can present the video with ultimate clarity.

Camera control

Configure and control your camera or dome using one of the various pre-defined control protocols. VideoJet X SN encoders provide a serial interface and alternatively support Bilinx communication over coax cable.

Easy Upgrade

Remotely upgrade the VideoJet X SN encoders whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

ONVIF conformance

Firmware 4.10 introduces conformance to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

Certifications and Approvals

Approvals

Region	Certification	
Europe	CE	VideoJet X10/X20/X40 SN
USA	UL	VideoJet X10/X20/X40, X40 SN
		UL online certifications directory (link)

Safety

Region	Number
	IEC 60950

Electromagnetic Compatibility

Region	Number
EU	EN55103-1 Video and audio equipment
	EN50130-4 Alarm systems
	EN55022 ITE
	EN55024 ITE
	EN61000-3-2
	EN61000-3-3
AUS/NZ	AS/NZS 3548 Class B
US	FCC 47 CFR Chapter 1 Part 15

Installation/Configuration Notes

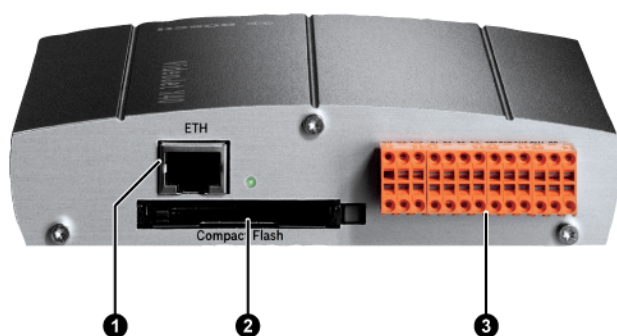
Front Connectors and Indicators



VideoJet X40 SN—front

- 1 USB
- 2 Video input 1 (2, 3, and 4 where applicable)
- 3 2-channel audio input (1-channel for X10)
- 4 1-channel audio output
- 5 LED CF (only operates if CF card is mounted)
- 6 LED Connect

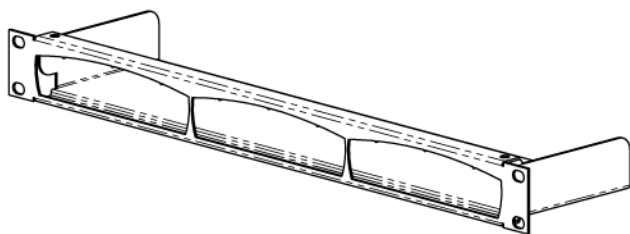
Rear Connectors and Indicators



VideoJet X SN series—rear

- 1 Ethernet
- 2 Compact Flash slot
- 3 Alarm input, relay output, serial interface, and power input on separate connector blocks

Rack Mounting Kit (Optional)



Parts Included

Quantity Component

- | | |
|---|--|
| 1 | VideoJet X10 SN encoder with 1 video input, or
VideoJet X20 SN encoder with 2 video inputs, or
VideoJet X40 SN encoder with 4 video inputs |
| 1 | Quick Installation Guide |
| 1 | CD-ROM with software and documentation |
| 1 | Set of spring clamp contact connectors |

An optional power supply with primary adaptors for EU, US, UK, and AUS can be ordered separately.

Technical Specifications

Electrical

Power supply	Via external unit or external battery
Input voltage	10 to 30 VDC
Power consumption	X10: approx. 11 VA, fully equipped X20/X40: approx. 19 VA, fully equipped

Input/output

Video	X10: 1 x input
	X20: 2 x input
	X40: 4 x input
	<ul style="list-style-type: none"> connector BNC impedance 75 ohm, switchable signal Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
Audio	X10: 1 x mono line in, 1 x mono line out
	X20/X40: 2 x mono line in, 1 x mono line out
	<ul style="list-style-type: none"> connector 2 x 3.5 mm stereo jack signal line in 9 kohm typical, 5.5 Vpp max signal line out 3.0 Vpp at 10 kohm / 1.7 Vpp at 16 ohm typical
Alarm	4 x input
	<ul style="list-style-type: none"> connector Clamp (non-isolated closing contact) activation resistance 10 ohm max
Relay	4 x output
	<ul style="list-style-type: none"> connector Clamp signal 30 Vpp (SELV), 2 A
COM port	Clamp, RS-232/422/485

Video

Standards	H.264 Baseline Profile (ISO/IEC 14496-10), MPEG-4, M-JPEG, JPEG
Data rates	9.6 kbps to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
<ul style="list-style-type: none"> 4CIF (MPEG-4 only) 	X10/X20: 704 x 576/480 (25/30 ips*)
	X40: 704 x 576/480 (12.5/15 ips*; all inputs used)
<ul style="list-style-type: none"> 2CIF 2/3 D1 1/2 D1 CIF QCIF 	704 x 288/240 (25/30 ips*) 464 x 576/480 (25/30 ips*) 352 x 576/480 (25/30 ips*) 352 x 288/240 (25/30 ips*) 176 x 144/120 (25/30 ips*)
	* Depending on encoding algorithm, picture content and movement

GOP structure	I, IP
Overall IP delay	120 ms
Frame rate	1 to 50/60 (PAL/NTSC)

Audio

Standard	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate

Network

Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNMP (V1, MIB-II), 802.1x
Encryption	TLS 1.0, SSL, AES (optional)

Control	
Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser
Connections	
CompactFlash	1 x CF slot for optional standard Type I/II CompactFlash memory card
USB port	1 x USB 2.0 high-speed port, 2.5 W max feed
Mechanical	
Dimensions (H x W x D)	33 x 142 x 178 mm (1.3 x 5.6 x 7 in)
Weight	Approx. 0.6 kg (1.3 lb)
Environmental	
Operating temperature	0 °C to +50 °C (+32 °F to +122 °F) ambient temperature
Relative humidity	20 to 80% atmospheric humidity, non-condensing
Thermal value	X10: 37 BTU/h max, fully equipped X20/X40: 65 BTU/h max, fully equipped

Ordering Information

VJT-X10SN VideoJet X10 SN for normal temperature with 1 video input	VJT-X10SN
VJT-X20SN VideoJet X20 SN for normal temperature with 2 video inputs	VJT-X20SN
VJT-X40SN VideoJet X40 SN for normal temperature with 4 video inputs	VJT-X40SN
Accessories	
VJT-XACC-PSN VJX10/20/40 wide-range power supply	VJT-XACC-PSN
VJT-XACC-RMK VideoJet X SN rack-mount kit for 3 units	VJT-XACC-RMK
DVA-12T-04050RA iSCSI RAID5, 12-bay 1.5 TByte net capacity (4 hard drives installed)	DVA-12T-04050RA
DVA-12T-12050RA iSCSI RAID5, 12-bay 5.5 TByte net capacity (12 hard drives installed)	DVA-12T-12050RA
DVA-12T-04100RA iSCSI Diskarray 12-bay 4 HDD, 4 TB	DVA-12T-04100RA
DVA-12T-12100RA iSCSI Diskarray 12-bay 12 HDD, 12 TB	DVA-12T-12100RA
DSA-N2B20-06AT Base unit with 6 x 1 TB SATA hard disk	DSA-N2B20-06AT
DSA-N2B20-12AT Base unit with 12 x 1 TB SATA hard disk	DSA-N2B20-12AT

Ordering Information

Software Options

MVC-FIVA4-ENC1 IVA 4.0 VCA software license for single channel encoder (e-license)	MVC-FIVA4-ENC1
MVC-FIVA4-ENC2 IVA 4.0 VCA software license for dual channel encoder (e-license)	MVC-FIVA4-ENC2
MVC-FIVA4-ENC4 IVA 4.0 VCA software license for quad channel encoder (e-license)	MVC-FIVA4-ENC4
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.	MVC-FENC-AES

VIP X1 Single-channel Video Encoder



Features

- ▶ **Single-channel encoder with Dual Streaming**
- ▶ **High-quality MPEG-4 from QCIF to 4CIF**
- ▶ **USB and iSCSI recording**
- ▶ **Ultra-compact size**
- ▶ **Multicast and Internet streaming**
- ▶ **Alarm inputs and relay output**

The VIP X1 features DVD-like quality MPEG-4 video, at up to 25/30 images per second, over IP networks. This unit supports PAL and NTSC sources.

The audio models of the VIP X1 provide bidirectional audio communication in parallel to video. Besides the standard line level interface, built-in amplifiers allow direct connection to microphone and speaker.

The VIP X1 Power-over-Ethernet models can be power-fed via the network cable.

The VIP X1 provides Dual Streaming. It is able to generate two independently configurable MPEG-4 video streams. The VIP X1 is ultra-compact, so it is perfect for any application that depends on space-saving solutions.

Functions

Viewing

The VIP X1's video can be viewed on a PC using a simple Web browser such as Internet Explorer or the Bosch Video Management System. It can also be integrated into other video management systems using the Bosch VideoSDK.

By routing the IP video to a high-performance VIP XD video decoder or a VIDOS Monitor Wall you can present the video with ultimate clarity on an analog CCTV or large, flat-screen VGA monitor or TV.

Recording

The VIP X1 offers unparalleled recording options—locally on a USB hard disk, network-attached utilizing iSCSI devices, and of course centrally using Network Video Recorders. The iSCSI RAID storage enables the VIP X1 to act as a conventional DVR as well as to stream high-performance live video across the network.

Dual Streaming

The VIP X1 uses Dual Streaming to generate two independent IP video streams per channel if sufficient computational power is available. This allows viewing and recording at two different quality levels to save disk space and bandwidth. On alarm, it may send out e-mail with JPEG images attached.

Access Security

The VIP X1 encoders offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

Intelligence

With built-in video content analysis, VIP X1 supports increased intelligence at the edge. VIP X1 comes with MOTION+ video motion detection built-in.

MOTION+ is a pixel-change-based motion detection algorithm that includes object size filtering capabilities and sophisticated tamper detection capabilities including:

- video loss
- image too bright (detect blinding)
- image too dark (hooding, spray painting)
- image too noisy (camera defocused)
- gross scene change (camera repositioned)

More advanced video content analysis (VCA) applications are offered with Bosch's Intelligent Video Motion Detection (IVMD). A licensable option, the IVMD algorithm is based on digital imaging technology and uses multi-level image analysis of pixel, texture, and motion changes.

IVMD dynamically adapts to global lighting changes and weather conditions (e.g. rain, snow, blowing leaves, etc.). IVMD detects objects entering or leaving an area (detector field) and includes user definable filters for object size, direction of travel (single and dual), and speed. IVMD includes the same tamper detection filters as MOTION+.

These powerful devices represent the cutting edge of high-performance Video-over-IP for CCTV today.

Easy Upgrade

Remotely upgrade the VIP X1 encoders whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Certifications and Approvals

Approvals

Region	Certification	
Europe	CE	VIP X
USA	UL	VIP X
	UL online certifications directory (link)	

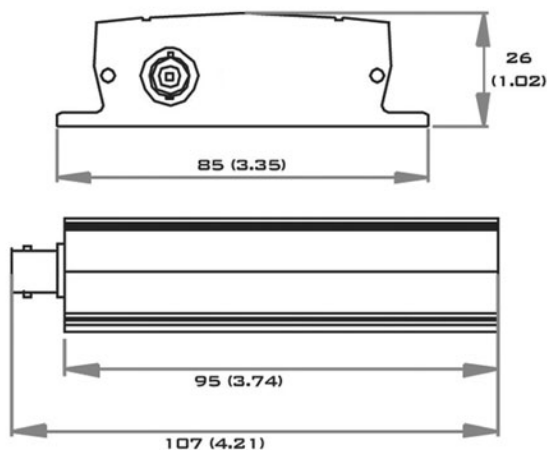
Safety

Region	Number
	IEC 60950

Electromagnetic Compatibility

Region	Number
EU	EN55103-1 Video and audio equipment
	EN55103-2 Video and audio equipment
	EN50130-4 Alarm systems
	EN55022 ITE
	EN55024 ITE
US	EN61000-3-2
	EN61000-3-3
	FCC 47 CFR Chapter 1 Part 15

Installation/Configuration Notes



Dimensions in mm (inches)

Front Connectors and Indicators



Non-audio models

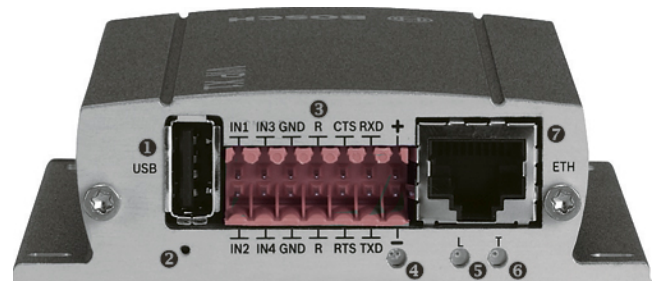
- 1 Video In 1



Audio models

- 1 Video In 1
- 2 Line In
- 3 Microphone in , speaker out
- 4 Line Out

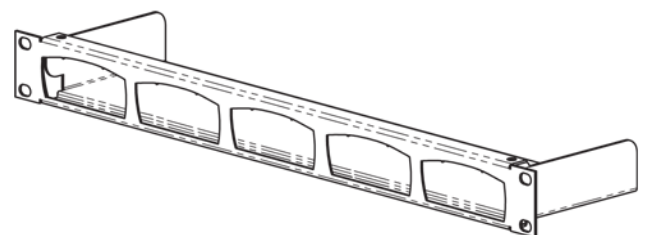
Rear Connectors and Indicators



All models

- 1 USB port
- 2 Reset: factory default
- 3 Alarm in, relay out, power, COM (RS-232/422/485)
- 4 LED Power
- 5 LED Link
- 6 LED Traffic
- 7 10/100 Base-T Fast Ethernet

Rack Mounting Kit (Optional)



Parts Included

Quantity	Component
1	VIP X1 single-channel video encoder, or VIP X1A single-channel video/audio encoder, or VIP X1P single-channel video encoder with PoE, or VIP X1AP single-channel video/audio encoder with PoE
1	International plug-in power supply
1	RS-232 null modem cable
1	Quick Installation Guide
1	CD-ROM with software and documentation

Technical Specifications**Electrical**

Power supply	VIP-X-PS included in the box
Input voltage	12 to 24 VDC
Power consumption	Approx. 6 VA
PoE models additionally	802.3af, class 2
• power output	2.5 W max

Input/output

Video	1 x input
• connector	BNC
• impedance	75 ohm, switchable
• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
Audio (audio versions only)	1 x mono line in, 1 x mono line out, 1 x microphone input, 1 x speaker output
• connector	2 x 3.5 mm stereo jack, 1 x CombiCon
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	16 ohm min, 3.0 Vpp max
• signal microphone	2 kohm typical, 2.8 Vpp max at -20 dB, 2.3 Vpp typical
• signal speaker	4 ohm min, 6 Vpp max, 1 W RMS
Alarm	4 x input
• connector	Clamp (non-isolated closing contact)
• activation resistance	10 ohm max
Relay	1 x output
• connector	Clamp
• signal	30 Vpp, 2 A
COM port	Clamp, RS-232/422/485

Video

Standards	MPEG-4, M-JPEG, JPEG
Data rates	9.6 kbps to 6 Mbps
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF	704 x 576/480 (25/30 ips*)
• 2CIF	704 x 288/240 (25/30 ips*)
• 2/3 D1	464 x 576/480 (25/30 ips*)
• 1/2 D1	352 x 576/480 (25/30 ips*)
• CIF	352 x 288/240 (25/30 ips*)
• QCIF	176 x 144/120 (25/30 ips*)
	* Depending on picture content and movement
GOP structure	I, IP
Overall IP delay	120 ms
Frame rate	1 to 50/60 (PAL/NTSC)

Audio (audio versions only)

Standard	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate

Network

Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, 802.1x
Encryption	TLS 1.0, SSL, AES (optional)

Control

Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser

Connections

USB port	1 x USB 2.0 high-speed port, 2.5 W max feed
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Mechanical

Dimensions (H x W x D)	26 x 85 x 107 mm (1.02 x 3.35 x 4.21 in)
Weight	Approx. 0.17 kg (0.37 lb)

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F) ambient temperature
Relative humidity	20 to 80% atmospheric humidity, non-condensing
Thermal value	21 BTU/h max

Ordering Information

VIPX1 MPEG-4 dual-stream 1-channel encoder, USB, serial I/O, alarm in, relay	VIPX1
VIPX1A MPEG-4 dual-stream 1-channel encoder, USB, audio, serial I/O, alarm in, relay	VIPX1A
VIPX1AP MPEG-4 dual-stream 1-channel encoder, USB, audio, PoE, serial I/O, alarm in, relay	VIPX1AP
Accessories	
VIPRMK1HU VIP X/10/1000 rack-mount kit for 5 units (1HU)	VIPRMK1HU
VIP-X-PS Power supply	VIP-X-PS
DVA-12T-04100RA iSCSI Diskarray 12- bay 4 HDD, 4 TB	DVA-12T-04100RA
DVA-12T-12100RA iSCSI Diskarray 12- bay 12 HDD, 12 TB	DVA-12T-12100RA
DVA-12T-04050RA iSCSI RAID5, 12-bay 1.5 TByte net capacity (4 hard drives installed)	DVA-12T-04050RA
DVA-12T-12050RA iSCSI RAID5, 12-bay 5.5 TByte net capacity (12 hard drives installed)	DVA-12T-12050RA
Software Options	
VIP-X1-FS1 VIP X1 IVMD 1.0 VCA software license	VIP-X1-FS1
SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installa- tion. It enables encrypted communication be- tween BVIP encoders, decoders and manage- ment stations.	MVC-FENC-AES

VIP X2 Dual-channel Video Encoder



Features

- ▶ **Dual-channel encoder with Dual Streaming**
- ▶ **High-quality MPEG-4 from QCIF to 4CIF**
- ▶ **USB and iSCSI recording**
- ▶ **Ultra-compact size**
- ▶ **Multicast and Internet streaming**
- ▶ **Alarm inputs and relay output**

These ultra-compact IP video encoders support two video channels that can convert both PAL and NTSC signals into MPEG-4 video, at up to 25/30 images per second on each channel. A Web browser or Bosch's comprehensive video management system can receive and display the images.

The VIP X2 is available as an audio model, VIP X2A providing bi-directional audio communication in parallel to video. Besides the standard line-level interfaces for both audio channels, it has integrated amplifiers to connect a microphone and speaker to channel 1 directly.

Functions

Viewing

View the video on a PC using Bosch's comprehensive video management system or in a Web browser. Integrate it into other video management systems using the Bosch VideoSDK.

Present images clearly on analog CCTVs, large, flat-screen monitors, or on TVs by routing the IP video to a high-performance VIP XD video decoder or a VIDOS Monitor Wall.

Recording

The VIP X2 has many recording options:

- locally on a USB hard disk,
- on network-attached iSCSI devices,
- centrally, using network video recorders.

If iSCSI RAID storage is available, it enables the VIP X2 to act as a conventional DVR, as well as streaming high-performance live video across the network.

Dual Streaming

The VIP X2 uses Dual Streaming to generate two independent IP video streams per channel if sufficient computational power is available. This allows viewing and recording at two different quality levels, saving disk space and bandwidth. Program it to send out e-mail with JPEG images attached when triggered by an alarm.

Access Security

The VIP X2 encoders offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

Intelligence

The VIP X2 supports increased intelligence at the edge that includes detection of video loss, masking, hooding, defocusing, and diverted camera. These detection features provide tamper detection for various unified picture causes. Bosch offers Intelligent Video Motion Detection (IVMD) as an additional licensable option. This provides video content analysis (VCA) directly at the video input for even more advanced VCA.

These powerful devices represent the cutting edge of high-performance Video-over-IP for CCTV today.

Easy Upgrade

Remotely upgrade the VIP X2 encoders whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Certifications and Approvals

Approvals

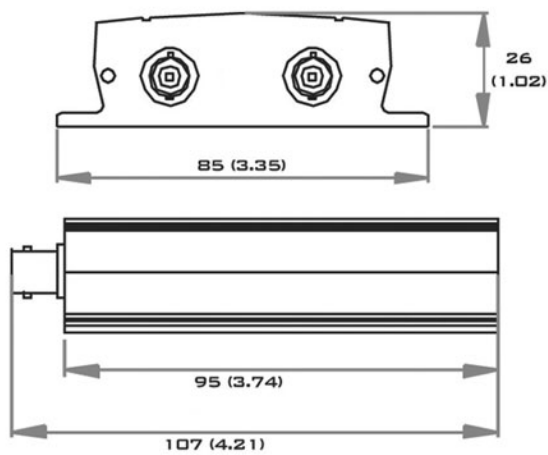
Region	Certification	
Europe	CE	VIP X
USA	UL	VIP X
		UL online certifications directory (link)

Safety

IEC 60950

Electromagnetic Compatibility

Region	Number
EU	EN55103-1 Video and audio equipment
	EN55103-2 Video and audio equipment
	EN50130-4 Alarm systems
	EN55022 ITE
	EN55024 ITE
	EN61000-3-2
US	EN61000-3-3
	FCC 47 CFR Chapter 1 Part 15

Installation/Configuration Notes

Dimensions in mm (in)

Front Connectors and Indicators

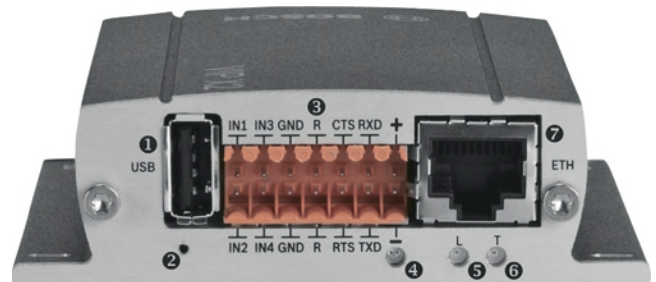
Non-audio model

- 1 Video In 1 2 Video In 2



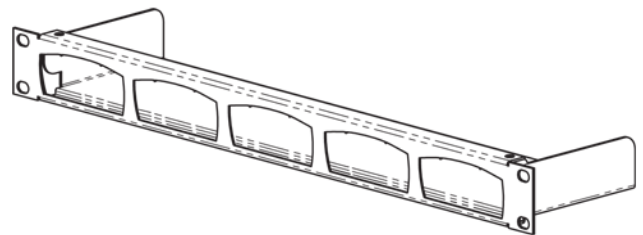
Audio model

- 1 Video In 1 4 Line Out
2 Line In 5 Video In 2
3 Microphone in , speaker out

Rear Connectors and Indicators

All models

- 1 USB port 5 LED Link
2 Reset: factory default 6 LED Traffic
3 Alarm in, relay out, power, COM (RS-232/422/485)
4 LED Power 7 10/100 Base-T Fast Ethernet

Rack Mounting Kit (Optional)**Parts Included**

Quantity	Component
1	VIP X2 dual-channel video encoder or VIP X2A dual-channel video/audio encoder
1	International plug-in power supply
1	RS-232 null modem cable
1	Quick Installation Guide
1	CD-ROM with software and documentation

Technical Specifications**Electrical**

Power supply	VIP-X-PS included in the box
Input voltage	12 to 24 VDC
Power consumption	Approx. 10 VA

Input/output

Video	2 x input
• connector	BNC
• impedance	75 ohm, switchable
• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
Audio (audio version only)	1 x mono line in, 1 x mono line out, 1 x microphone input, 1 x speaker output
• connector	2 x 3.5 mm stereo jack, 1 x CombiCon
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	16 ohm min, 3.0 Vpp max
• signal microphone	2 kohm typical, 2.8 Vpp max at -20 dB, 2.3 Vpp typical
• signal speaker	4 ohm min, 6 Vpp max, 1 W RMS
Alarm	4 x input
• connector	Clamp (non-isolated closing contact)
• activation resistance	10 ohm max
Relay	1 x output
• connector	Clamp
• signal	30 Vpp, 2 A
COM port	Clamp, RS-232/422/485

Video

Standards	MPEG-4, M-JPEG, JPEG
Data rates	9.6 kbps to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF	704 x 576/480 (25/30 ips*)
• 2CIF	704 x 288/240 (25/30 ips*)
• 2/3 D1	464 x 576/480 (25/30 ips*)
• 1/2 D1	352 x 576/480 (25/30 ips*)
• CIF	352 x 288/240 (25/30 ips*)
• QCIF	176 x 144/120 (25/30 ips*)
	* Depending on picture content and movement
GOP structure	I, IP
Overall IP delay	120 ms
Frame rate	1 to 50/60 (PAL/NTSC)

Audio (audio version only)

Standard	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate

Network

Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, 802.1x
Encryption	TLS 1.0, SSL, AES (optional)

Control

Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser

Connections

USB port	1 x USB 2.0 high-speed port, 2.5 W max feed
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Mechanical

Dimensions (H x W x D)	26 x 85 x 107 mm (1.02 x 3.35 x 4.21 in)
Weight	Approx. 0.2 kg (0.44 lb)

Environmental

Operating temperature	0 °C to +40 °C (+32 °F to +104 °F) ambient temperature
Relative humidity	20 to 80% atmospheric humidity, non-condensing
Thermal value	82 BTU/h max

Ordering Information

VIPX2 MPEG-4 dual-stream 2-channel encoder, USB, serial I/O, alarm in and relay	VIPX2
VIPX2A MPEG-4 dual-stream 2-channel encoder, USB, audio, serial I/O, alarm in, relay	VIPX2A
Accessories	
DVA-12T-04100RA iSCSI Diskarray 12-bay 4 HDD, 4 TB	DVA-12T-04100RA
DVA-12T-12100RA iSCSI Diskarray 12-bay 12 HDD, 12 TB	DVA-12T-12100RA
VIPRMK1HU VIP X/10/1000 rack-mount kit for 5 units (1HU)	VIPRMK1HU
VIP-X-PS Power supply	VIP-X-PS

Ordering Information

Software Options

VIP-X2-FS1

VIP X2 IVMD 1.0 VCA software license, valid for all 2 channels

VIP-X2-FS1
SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software
SFT-VASA
MVC-FENC-AES BVIP AES 128 Bit
Encryption

BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.

MVC-FENC-AES

VIP XD Single/Quad-stream Decoder



Features

- ▶ **Quad-view option**
- ▶ **DVD-quality 25/30 ips at 4CIF**
- ▶ **Ultra-compact size**
- ▶ **Composite video or VGA output**
- ▶ **Alarm inputs and relay output**
- ▶ **Audio option**

The VIP XD displays DVD-like quality H.264, MPEG-4 and MPEG-2 encoded video at up to 25/30 images per second from PAL or NTSC sources over IP networks.

Establish the video connections automatically with the encoder, decoder, or Bosch's comprehensive video management system. Set up the VIP XD to display video in single-view or quad-view mode. It is capable of decoding up to four MPEG-4 video streams at the same time. Control the viewing mode remotely via a management system like VIDOS. Alternatively, the VIP XD can drive a VGA display directly, thus is ideally suited for applications like flat-screen monitor walls.

The VIP XD is available as an audio model, providing one-channel bidirectional audio communication in parallel to video.

Besides the standard line level interface, it has integrated amplifiers to connect directly to a microphone and speaker.

Ultra-compact in size, the VIP XD is perfect for any application that depends on space-saving solutions.

Functions

Access Security

The VIP XD decoders offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with two levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

High Performance

Transmit IP video to a high-performance VIP XD video decoder and present it with ultimate clarity on an analog CCTV or on a large, flat-screen VGA monitor. VIP XD can handle up to four MPEG-4 video streams with full resolution and frame rate and display it in quad-view. When in single-view it can display either H.264, MPEG-4 or MPEG-2.

Easy Upgrade

Remotely upgrade the VIP XD decoders whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Certifications and Approvals

Approvals

Region	Certification	
Europe	CE	VIP X
USA	UL	VIP X
		UL online certifications directory (link)

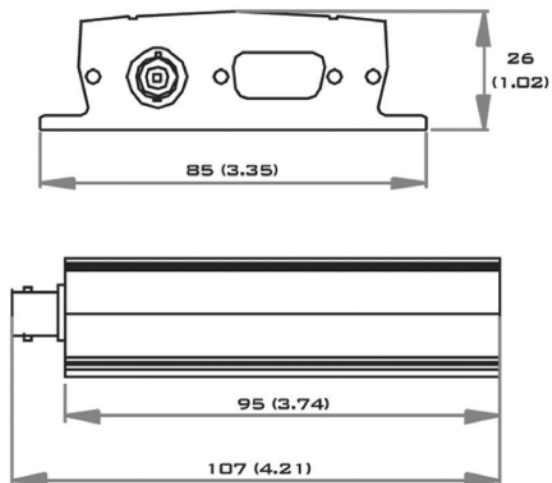
Safety

Region	Number
	IEC 60950

Electromagnetic Compatibility

Region	Number
EU	EN55103-1 Video and audio equipment
	EN55103-2 Video and audio equipment
	EN50130-4 Alarm systems
	EN55022 ITE
	EN55024 ITE
	EN61000-3-2
	EN61000-3-3
US	FCC 47 CFR Chapter 1 Part 15

Installation/Configuration Notes



Dimensions in mm (in)

Front Connectors and Indicators



Non-audio model

1 Video Out

2 VGA



Audio model

1 Video Out

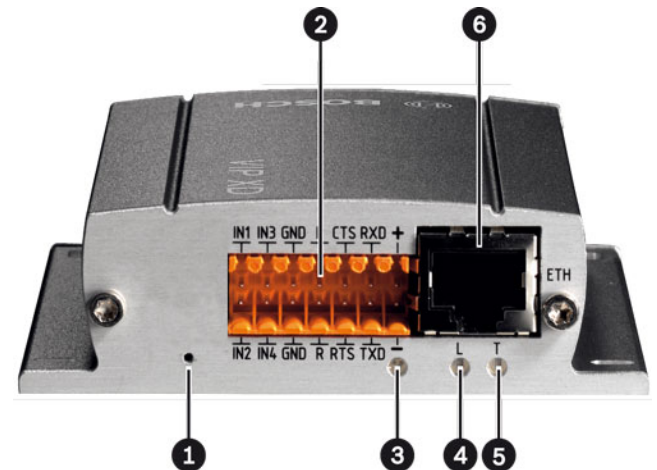
2 Line In

3 Microphone in, speaker out

4 Line Out

5 VGA

Rear Connectors and Indicators



All models

1 Reset: factory default

2 Alarm in, relay out, power, COM (RS-232/422/485)

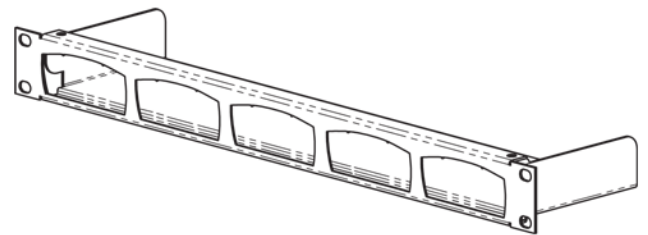
3 LED Power

4 LED Link

5 LED Traffic

6 10/100 Base-T Fast Ethernet

Rack Mounting Kit (Optional)



Parts Included

Quantity	Component
1	VIP XD single/quad-stream decoder, or VIP XDA single/quad-stream decoder with audio
1	International plug-in power supply
1	RS-232 null modem cable
1	Quick Installation Guide
1	CD-ROM with software and documentation

Technical Specifications

Electrical

Power supply	VIP-X-PS included in the box
Input voltage	12 to 24 VDC
Power consumption	Approx. 7 VA

Input/output

Video	1 x output
• connector	BNC
• impedance	75 ohm
• signal	Analog composite, 1 Vpp, NTSC or PAL

Input/output

VGA	1 x output
• connector	15-pin Sub-D
• signal	1 Vpp, RGB analog
Audio (audio version only)	1 x mono line in, 1 x mono line out, 1 x microphone input, 1 x speaker output
• connector	2 x 3.5 mm stereo jack, 1 x CombiCon
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	16 ohm min, 3.0 Vpp max
• signal microphone	2 kohm typical, 2.8 Vpp max at -20 dB, 2.3 Vpp typical
• signal speaker	4 ohm min, 6 Vpp max, 1 W RMS
Alarm	4 x input
• connector	Clamp (non-isolated closing contact)
• activation resistance	10 ohm max
Relay	1 x output
• connector	Clamp
• signal	30 Vpp (SELV), 2 A
COM port	Clamp, RS-232/422/485

Video

Standards	H.264 BP+ (ISO/IEC 14496-10) MPEG-4, MPEG-2
Data rates	Up to 6 Mbps per stream
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF	704 x 576/480
• 2CIF	704 x 288/240
• 2/3 D1	464 x 576/480
• 1/2 D1	352 x 576/480
• CIF	352 x 288/240
• QCIF	176 x 144/120
GOP structure	I, IP
Overall IP delay	120 ms (MPEG-4)

Audio (audio version only)

Standard	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate

Network

Ethernet	10/100 Base-T, auto-sensing, half/full duplex, RJ45
Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNMP, SNMP (V1, MIB-II), 802.1x
Encryption	TLS 1.0, SSL, AES (optional)

Control

Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser

Mechanical

Dimensions (H x W x D)	26 x 85 x 107 mm (1.02 x 3.35 x 4.21 in)
Weight	Approx. 0.3 kg (0.66 lb)

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F) ambient temperature
Relative humidity	0 to 95% atmospheric humidity, non-condensing
Thermal value	24 BTU/h max

Ordering Information

VIP-XD H.264/MPEG-4/MPEG-2 single/quad-stream decoder, serial I/O, alarm in, relay	VIP-XD
VIP-XDA H.264/MPEG-4/MPEG-2 single/quad-stream decoder, audio, serial I/O, alarm in, relay	VIP-XDA

Accessories

VIPRMK1HU VIP X/10/1000 rack-mount kit for 5 units (1HU)	VIPRMK1HU
VIP-X-PS Power supply	VIP-X-PS

Software Options

SFT-VASA Hybrid IP - Analog/Matrix Video over IP Integration Software	SFT-VASA
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.	MVC-FENC-AES
IP Matrix BVIP IP Matrix license for decoder	MVC-FIPM

VIP X1600 XF Modular High-performance Video Encoder



Features

- ▶ **Up to 16 video input channels**
- ▶ **Modular and expandable with hot-swappable video modules**
- ▶ **Choice of modules, including high-performance H.264 encoders**
- ▶ **Direct or network-attached iSCSI RAID**
- ▶ **Intelligent video motion detection and camera tampering detection on encoder modules**
- ▶ **ONVIF conformant**

The Bosch VIP X1600 XF is a modular, high-performance CCTV video encoder system. Each VIP X1600 XF is a 4 x 4 unit that accommodates up to four hot-swappable modules, allowing modules to be added or exchanged at any time without interrupting transmission to the existing channels. Encoder modules, each with four analog audio/video inputs, can be mixed and matched within both base systems.

The VIP-X1600-XFB base system provides two 1 Gbps Ethernet ports on the front and an additional 1 Gbps Ethernet port on the rear. This provides a greater choice of network connectivity and allows for easier inside-rack cabling like, for example, direct connection to an iSCSI storage array. This base system also features a 1 Gbps small form-factor pluggable (SFP) slot on the front, for example, an optical transceiver to enable direct fiber connection to a remote network. For applications not benefiting from these advanced features the VIP-X1600-B base system is available that just provides two 1 Gbps Ethernet ports, one on the front and one on the rear.

The VIP X1600 XF H.264 main profile encoder modules (VIP-X1600-XFM4A/XFM4B) deliver real-time H.264 compressed video over IP, providing two independent streams per camera with full frame rate at best quality for different purposes, like one stream for live viewing with lowest delay while the second stream is optimized for

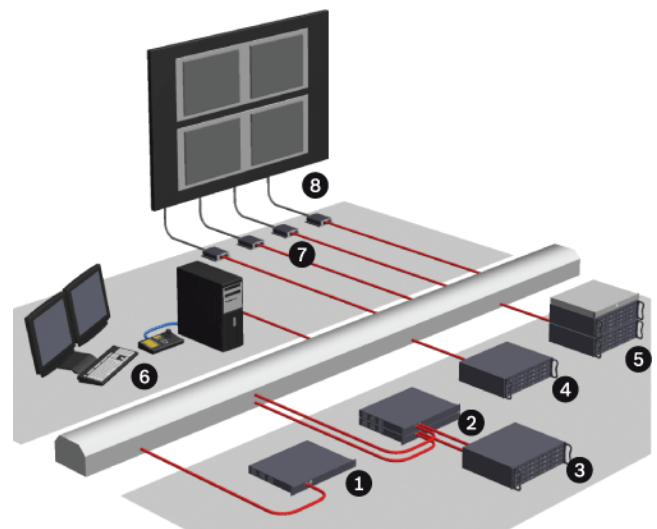
requiring only little recording space. In addition they are equipped with a hardware-accelerator for VCA functions, bringing “Intelligence-at-the-Edge” to the next level. A module version supporting Bilinx communication over coax cable is also available.

The VIP X1600 MPEG-4 encoder modules (VIPX1600M4S/M4SA) also support H.264 with the latest firmware, though with limited functionality.

View the video on a PC using Bosch’s comprehensive video management system, with or without Bosch’s IntuiKey keyboard. Alternatively, use a Web browser. These high-performance, multi-channel devices with iSCSI Recording-at-the-Edge, offer top-of-the-line Video-over-IP performance for CCTV today. Designed for reliability, the VIP X1600 XF features hot-swappable video modules, dual redundant power supply inputs, and redundant network ports.

The Bosch VideoSDK provides the means to integrate the VIP X1600 XF with other video management systems.

System Overview



- 1 VIP X1600 XF with 16 analog cameras, network-attached iSCSI storage, or streaming only
- 2 2 x VIP X1600 XF with 16 analog cameras
- 3 Direct-attached iSCSI RAID
- 4 Network-attached iSCSI RAID unit
- 5 NVR server with SCSI connection to very large RAID unit
- 6 Management station with IntuiKey
- 7 VIP XD decoders
- 8 Monitors

Functions

Flexibility

The VIP X1600 XF supports external storage, either directly attached to the unit (Recording-at-the-Edge), or across an IP network to a centralized network video recorder (NVR). For Recording-at-the-Edge, attach an iSCSI RAID directly to the VIP X1600 XF, making the system's recording performance wholly independent from the network's performance. The iSCSI RAID storage enables the VIP X1600 XF to act as a conventional DVR and stream high-performance live video across the network.

The VIP X1600 XF supports the Bosch Video Recording Manager VRM, Bosch's flexible and scalable recording management software. It allows a flexible assignment of recording space on camera level including load balancing and decent redundancy features. Bosch VRM is available as stand-alone system or embedded into the Bosch Video Management System.

Dual Streaming

The VIP X1600 XF encoder modules use Dual Streaming to generate two independent IP video streams per channel if sufficient computational power is available. This allows viewing and recording at two different quality levels to save disk space and bandwidth. On alarm, they can send an e-mail with JPEG images attached.

Dual Recording

You can record the streams independently on different media. Thus video can be recorded centrally on iSCSI drives managed by VRM Video Recording Manager and redundantly on the local media. If necessary, for example in case of a network failure VRM can fill up the gap in the central recording (ANR, Automatic Network Replenishment).

Recording Profiles

The encoder modules feature a highly flexible recording scheduler, providing up to ten programmable recording profiles and allowing individually assigned camera profiles. With these profiles, you can accelerate the frame rate as well as increase the resolution on alarm, saving recording space during non-alarm periods.

Access Security

The VIP X1600 XF modules offer various security levels for accessing the network, the unit, and the data channels. As well as password protection with up to three levels, they support 802.1x authentication using a RADIUS server for identification. You can secure Web browser access by HTTPS using a SSL certificate that is stored in the unit. For total data protection, each communication channel—video, audio, or serial I/O—can be independently AES encrypted with 128-bit keys, once the Encryption Site License has been applied.

Intelligence

With built-in video content analysis, VIP X1600 XF encoder modules reinforce the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The VIP X1600 XF encoder module comes with built-in MOTION+ video motion detection. This motion detection algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper detection capabilities.

Bosch offers more advanced video content analysis (VCA) applications with its Intelligent Video Analysis (IVA). A licensable option, it bases the IVA algorithm on digital imaging technology that uses multi-level image analysis of pixel, texture, and motion (trajectory) changes.

Viewing

View the VIP X1600 XF encoder module video on a PC using a Web browser, in the Bosch Video Management System, or integrate it into another video management system. By routing the IP video to a high-performance VIP XD or a VIDOS Monitor Wall, you can present the video with ultimate clarity.

The VIP X1600 XF is also used with VASA—Bosch's hybrid IP integration software—offering Allegiant IntuiKey users the ability to view an Allegiant camera or one from an IP-based system.

Easy Upgrade

Remotely upgrade the VIP X1600 XF modules whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

VIP X1600 M4S/M4SA and Firmware 4.0

Firmware 4.0 enables the Bosch MPEG-4 encoder modules (VIPX1600M4S/M4SA) to use H.264 Baseline Profile to encode the video signal. This allows reducing the required bit rate for a given quality setting, or increasing the quality when keeping the bit rate setting.

Frame Rates and Resolution

The MPEG-4 encoder modules (VIPX1600M4S/M4SA) deliver MPEG-4 video over IP at a full frame rate of 25 (PAL) or 30 (NTSC) images per second with up to 4CIF resolution on every channel, when one or two inputs are used. If four inputs are used, the maximum frame rate is 12.5/15 images per second at 4CIF resolution and no Dual Streaming is possible.

Because H.264 Baseline Profile does not support field encoding, interlaced video is not possible, thus resolution is limited to a maximum of 2CIF. H.264 encoding requires the double performance in respect to MPEG-4. Frame rate values must therefore be divided by two.

The maximum frame rates listed in the tables below depend on the resolution, picture content and movement, and the number of inputs used.

MPEG-4	4 inputs	2 inputs	1 input
4CIF	12.5/15 ips	25/30 ips	25/30 ips
2/3 D1	25/30 ips	25/30 ips	25/30 ips
2CIF	25/30 ips	25/30 ips	25/30 ips

ips = frame rate in images per second

H.264	4 inputs	2 inputs	1 input
2CIF	12.5/15 ips	25/30 ips	25/30 ips

ips = frame rate in images per second

The H.264 encoder modules (VIP-X1600-XFM4A/XFM4B) provide dedicated hardware for encoding and VCA and thus are not limited in frame rate and resolution settings, nor in Dual Streaming.

ONVIF conformance

Firmware 4.10 introduces conformance to the ONVIF (Open Network Video Interface Forum) specification guaranteeing interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information and ensure that they are automatically discovered and connected to network applications such as video management systems.

Certifications and Approvals

Approvals

Region	Certification
Europe	CE VIP X1600 XF VIP X1600 XFM4 VIP X1600 Power Supply VIPX1600M4S
USA	UL VIP X1600 Bases VIP X1600 Modules UL online certifications directory (link)
China	CCC VIP X1600 Power Supply

Safety

Region	Number
	IEC 60950

Electromagnetic Compatibility

Region	Number
EU	EN55103-1 Video and audio equipment EN50130-4 Alarm systems EN50121-4 EN55022 ITE EN55024 ITE EN61000-3-2 EN61000-3-3
US	FCC 47 CFR Chapter 1 Part 15

Installation/Configuration Notes

H.264 Encoder Modules (VIP-X1600-XFM4A/XFM4B)

All H.264 encoder modules have four camera inputs that support Dual Streaming. There are no limitations to the frame rate:

	Stream 1	Stream 2
4CIF/D1	30 ips	30 ips
CIF	30 ips	30 ips

MPEG-4 Encoder Modules (VIPX1600M4S/M4SA)

All MPEG-4 encoder modules have four camera inputs that support Dual Streaming if sufficient computational power is available. They can also be operated in 2-channel mode if higher performance per camera input is required. Frame rate combinations with 2- and 4-channel modules (PAL/NTSC):

	4 CH per module	2 CH per module
4CIF/D1	12.5/15 ips*	25/30 ips*
2/3 D1	25/30 ips*	25/30 ips*
2CIF	25/30 ips*	25/30 ips*

* Depending on picture content and movement

Front View Base Systems



VIP-X1600-XFB

- 2 x redundant 10/100/1000 Base-T Gigabit Ethernet
- 1 x SFP slot for additional Gigabit Ethernet interface e.g. via Fiber
- 5 x status LEDs

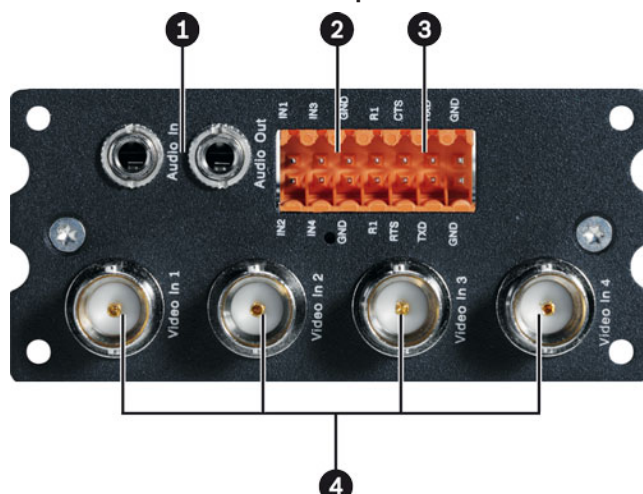


VIP-X1600-B

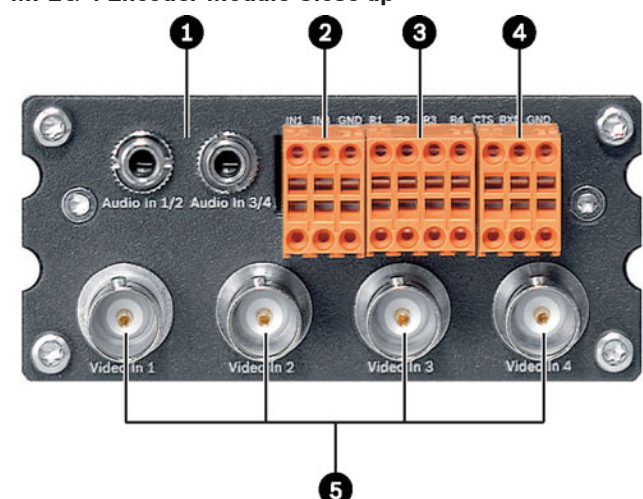
- 1 x 10/100/1000 Base-T Gigabit Ethernet (redundancy achieved by combining with rear side Ethernet interface)
- These interfaces are not available for VIP-X1600-B
- 5 x status LEDs

Rear View Base Systems

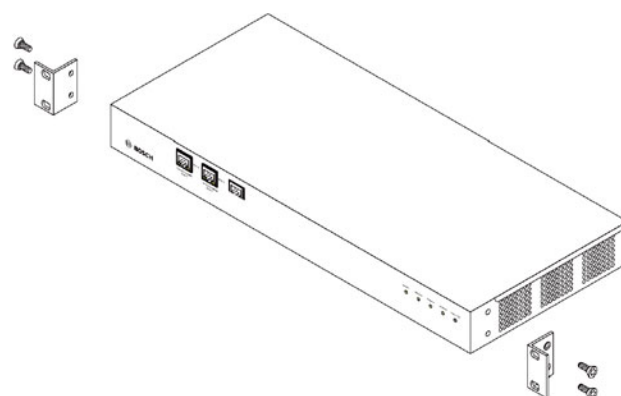
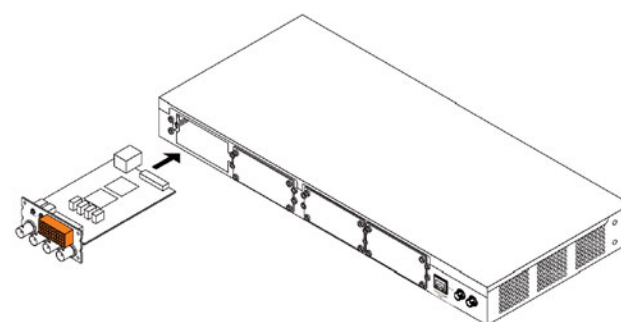
- 4 4 x module slot
- 5 1 x 10/100/1000 Base-T Gigabit Ethernet (redundancy achieved by combining with front side Ethernet interface)
- 6 2 x power supply input (redundant use possible)

H.264 Encoder Module Close-up

- 1 Line-level audio input/output jacks
- 2 4 x alarm in and 1 x relay out
- 3 COM port (RS-232/485)
- 4 4 x video input

MPEG-4 Encoder Module Close-up

- 1 Line-level stereo audio jack per 2 channels (video/audio module only)
- 2 4 x alarm in
- 3 4 x relay out
- 4 COM port (RS-232/485)
- 5 4 x video input

*VIP X1600 XF rack mounting accessories**VIP X1600 XF module assembly***Parts Included****VIP X1600 XF Base Systems**

Quantity	Component
1	VIP-X1600-XFB base system or VIP-X1600-B base system
1	Mounting kit for 19" rack
1	Quick Installation Guide
1	CD-ROM with software and documentation

Modules and power supply are not included, order separately.

VIP X1600 XF Modules

Quantity	Component
1	VIPX1600M4S 4-channel video module, or VIPX1600M4SA 4-channel video/audio module, or VIP-X1600-XFM4A/B 4-channel H.264 encoder module
1	Quick Installation Guide

VIP X1600 XF Stand-alone Power Supply

Quantity	Component
1	VIP-X1600-PS stand-alone power supply (EU/US, UK, and AUS versions available)
1	Power cord (EU/US one each)

Technical Specifications**Base Systems****Power supply**

Input voltage	12 VDC, redundant (dual inputs)
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Power consumption	50 VA max, fully equipped
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Network**VIP-X1600-XFB**

Ethernet	Triple port (2 front, 1 rear) 10/100/1000 Base-T, auto sensing, half/full duplex, RJ45
----------	---

SFP	1 Gbps SFP (small form-factor pluggable) slot at front
-----	--

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNMP (V1, MIB-II), 802.1x, RSTP
-----------	---

Network VIP-X1600-B

Ethernet	Dual port (1 front, 1 rear) 10/100/1000 Base-T, auto sensing, half/full duplex, RJ45
----------	--

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNMP (V1, MIB-II), 802.1x, RSTP
-----------	---

Mechanical

Dimensions (H x W x D)	44 x 440 x 210 mm (without brackets) (17.3 x 8.3 x 1.7 in)
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Color	Charcoal
-------	----------

Weight	Approx. 4.0 kg (8.4 lb) with 4 modules
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Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F)
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Storage temperature	0 °C to +50 °C (+32 °F to +122 °F)
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Relative humidity	0 to 95%, non-condensing
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Thermal value	170 BTU/h max
---------------	---------------

H.264 Encoder Modules (VIP-X1600-XFM4A/XFM4B)**Input/output**

Video	4 x input
-------	-----------

• connector	BNC
-------------	-----

• impedance	75 ohm, switchable
-------------	--------------------

• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
----------	---

Audio	2 x mono line in, 1 x mono line out
-------	-------------------------------------

• connector	2 x 3.5 mm stereo jack
-------------	------------------------

• signal line in	9 kohm typical, 5.5 Vpp max
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• signal line out	3.0 Vpp at 10 kohm/1.7 Vpp at 16 ohm typ.
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Alarm	4 x input
-------	-----------

• connector	Clamp (non-isolated closing contact)
-------------	--------------------------------------

• activation resistance	10 ohm max
-------------------------	------------

Relay	1 x output
-------	------------

• connector	Clamp
-------------	-------

• signal	30 Vpp (SELV), 0.2 A
----------	----------------------

COM port	Clamp, RS-232/422/485
----------	-----------------------

Video

Standards	H.264 MP, H.264 BP+ (ISO/IEC 14496-10) M-JPEG
-----------	--

Data rates	9.6 kbps to 6 Mbps per channel (MP)
------------	-------------------------------------

	9.6 kbps to 2.5 Mbps per channel (BP+)
--	--

Resolution	Horizontal x vertical PAL/NTSC
------------	--------------------------------

• 4CIF/D1	704 x 576/480 (25/30 ips)
-----------	---------------------------

• CIF	352 x 288/240 (25/30 ips)
-------	---------------------------

GOP structure	I, IP, IPBB
---------------	-------------

Overall IP delay	120 ms
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Dual streaming	Independently on all channels
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Frame rate	1 to 50/60 (PAL/NTSC)
------------	-----------------------

Audio

Standard	G.711; 300 Hz to 3.4 kHz
----------	--------------------------

Data rate	80 kbps at 8 kHz sampling rate (mono channel)
-----------	---

Network

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNMP (V1, MIB-II), 802.1x
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Encryption	TLS 1.0, SSL, AES (optional)
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Control

Software update	Flash ROM, remote programmable
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Configuration	Configuration Manager or Web browser
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Environmental

Operating temperature	0 °C to +40 °C (+32 °F to +104 °F)
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Storage temperature	0 °C to +50 °C (+32 °F to +122 °F)
---------------------	------------------------------------

Relative humidity	0 to 95%, non-condensing
-------------------	--------------------------

MPEG-4 Encoder Modules (VIPX1600M4S/M4SA)**Input/output**

Video	4 x input
-------	-----------

• connector	BNC
-------------	-----

• impedance	75 ohm, switchable
-------------	--------------------

• signal	Analog composite, 0.7 to 1.2 Vpp, NTSC or PAL
----------	---

Audio (audio version only)	4 x mono line in
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• connector	2 x 3.5 mm stereo jack
-------------	------------------------

• signal	9 kohm typical, 5.5 Vpp max
----------	-----------------------------

Alarm	4 x input
-------	-----------

• connector	Clamp (non-isolated closing contact)
-------------	--------------------------------------

• activation resistance	10 ohm max
-------------------------	------------

Relay	4 x output
-------	------------

• connector	Clamp
-------------	-------

• signal	30 Vpp (SELV), 2 A
----------	--------------------

COM port	Clamp, RS-232/422/485
----------	-----------------------

Video

Standards	H.264 Baseline Profile (ISO/IEC 14496-10) MPEG-4, M-JPEG
Data rates	9.6 kbps to 6 Mbps per channel
Resolution	Horizontal x vertical PAL/NTSC
• 4CIF/D1	704 x 576/480 (12.5/15 ips*)
• 2CIF	704 x 288/240 (25/30 ips*)
• 2/3 D1	464 x 576/480 (25/30 ips*)
• 1/2 D1	352 x 576/480 (25/30 ips*)
• CIF	352 x 288/240 (25/30 ips*)
• QCIF	176 x 144/120 (25/30 ips*)
	* Depending on picture content and movement
GOP structure	I, IP
Overall IP delay	120 ms
Frame rate	1 to 50/60 (PAL/NTSC)

Audio (audio version only)

Standard	G.711; 300 Hz to 3.4 kHz
Data rate	80 kbps at 8 kHz sampling rate

Network

Protocols	RTP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, RTSP, SMTP, SNMP (V1, MIB-II), 802.1x
Encryption	TLS 1.0, SSL, AES (optional)

Control

Software update	Flash ROM, remote programmable
Configuration	Configuration Manager or Web browser

Environmental

Operating temperature	0 °C to +50 °C (+32 °F to +122 °F)
Storage temperature	0 °C to +50 °C (+32 °F to +122 °F)
Relative humidity	0 to 95%, non-condensing

Ordering Information

VIP-X1600-XFB VIP-X1600-XFB base system	VIP-X1600-XFB
VIP-X1600-B VIP-X1600-B base system	VIP-X1600-B
VIP-X1600-XFM4A VIP X1600 XF 4-channel H.264 video/audio module, serial I/O, 4 alarm in, 1 relay, dual mono audio in, mono audio out	VIP-X1600-XFM4A
VIP-X1600-XFM4B VIP X1600 XF 4-channel H.264 video/audio module with Bilinix-support, serial I/O, 4 alarm in, 1 relay, dual mono audio in, mono audio out	VIP-X1600-XFM4B
VIPX1600M4S VIP X1600 4-channel video module, serial I/O, 4 alarm in, 4 relays	VIPX1600M4S
VIPX1600M4SA VIP X1600 4-channel video/audio module, serial I/O, 4 alarm in, 4 relays, 4 audio in	VIPX1600M4SA

Ordering Information**Accessories**

VIP-X1600-PS VIP X1600 stand-alone power supply for EU and US	VIP-X1600-PS
VIP-X1600-PSUK VIP X1600 stand-alone power supply for UK	VIP-X1600-PSUK
DSA-N2B20-06AT Base unit with 6 x 1 TB SATA hard disk	DSA-N2B20-06AT
DSA-N2B20-12AT Base unit with 12 x 1 TB SATA hard disk	DSA-N2B20-12AT

Software Options

MVC-FIVA4-ENC4 IVA 4.0 VCA software license for quad channel encoder (e-license)	MVC-FIVA4-ENC4
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP encoders, decoders and management stations.	MVC-FENC-AES

Bosch Video Management System Software V. 2



Features

- ▶ **Enterprise-class Client/Server based video management system**
- ▶ **System-wide user management, alarm handling, health monitoring, and configuration**
- ▶ **Full virtual matrix capabilities, including analog monitor support and CCTV keyboard control**
- ▶ **Superior alarm handling with alarm priorities and selectable user group distribution**
- ▶ **Advanced user interface concepts for effective and efficient operation**
- ▶ **Bosch Workstations and Servers recommended for optimal system reliability and performance**

The Bosch Video Management System is a unique enterprise IP video security solution that provides seamless management of digital video, audio, and data across any IP network. It is designed to work with Bosch CCTV products as part of a total video security management system. You can integrate your existing components into one easy-to-manage system, or use our full-line capabilities and benefit from a complete security solution based on cutting-edge technology and years of experience.

The Bosch Video Management System is installed on Microsoft Windows 32-bit Operating Systems.

We recommend using Bosch Workstations and Servers. They are fully tested and optimized for Bosch Video Management System.

In addition to the Bosch ST standard terms and conditions of sale, the Bosch Video Management System software is covered by the Bosch VMS Software Maintenance Agreement, which can be found in your online CCTV product catalog.

System Overview

The Bosch Video Management System contains the following software components:

- Central Server software provides management, monitoring, and control of the entire system
- Video Recording Manager (VRM) and Network Video Recorder (NVR) services provide recording and playback management of video, audio, and data
- Configuration Client software provides the user interface for system configuration and management
- Operator Client software provides the user interface for system monitoring and operation

These software components can be run together on a single PC for small systems or on separate PCs and servers for large systems.

Bosch Video Recording Manager (VRM) provides a Distributed Network Video Recorder solution, eliminating the need for dedicated NVRs, and signaling the second generation of IP Network video recording.

The VRM provides load balancing and failover for the iSCSI storage and makes it easy to add additional iSCSI storage later on. VRM introduces the concept of a storage virtualization layer. This abstraction layer enables VRM to manage all of the individual disk arrays in the entire system as a single “virtual” common pool of storage, which is intelligently allocated as needed.

The usage of multiple client workstations offers great scalability.

Functions

Deployment

- Updates of Operator Client and Configuration Client automatically deployed from Central Server
- Supports all Bosch MPEG-4 encoders, decoders, IP Cameras, IP AutoDomes, Allegiant, DiBos, Bosch POS/ATM Bridge, and DiBos-compatible ATM Bridge

Configuration

- Automatic discovery of IP devices
- Automatic IP address assignment of IP devices
- Batch firmware updates of IP devices
- Failover NVR configurable to backup Primary NVRs
- Redundant NVR
- Configurable Logical Tree
- Predefined camera sequences
- “Automatic Sequences” created by multiple selection and drag and drop to Image panes
- Four configurable user-event buttons

User Interface

- Zoomable sitemaps with links, devices, sequences, and Command Scripts
- Sitemaps in DWF format are used. DWF format version 6.0 or later is not supported.
- Up to 4 PC monitors supported per Workstation
- CCTV keyboard support, connected to either Workstation or IP decoder
- Flexible Image panes allow any combination of video window sizes and layouts
- Any live Image pane can be switched to instant playback
- Multiple instant playback Image panes

- Image windows can display live video, instant playback video, text documents, maps, or web pages
- Device states shown by icons, including network-connection loss, video loss, and camera de-adjustment
- Favorites tree can be individually configured per user
- Favorites tree can include complete views with Image pane layouts and camera assignments
- Camera selection by double-click or drag and drop from site maps, Logical Tree, or Favorites Tree
- Decoders can be organized in Analog Monitor Walls
- Control of analog monitors connected to decoders via drag and drop
- Synchronized playback of up to 16 NVR cameras and up to 4 VRM cameras
- Sophisticated multi-camera timeline allows easy, graphical searching of stored video
- Timeline colors indicate recording status – normal recording, alarm recording, motion recording, protected recording, and audio recording (not for cameras managed by a VRM)
- Easy clip selection by dragging hairlines in the timeline
- Selected clips can be exported to DVD, network drives, or USB sticks with a few mouse clicks
- Flexible search works across all NVRs and DVRs connected to the system
- Post-recording motion search allows changes to selected areas of the image to be easily located
- Forensic Search allows the usage of Intelligent Video Analysis (IVA) algorithms on the recorded video
- Two audio listening options – selected channel only, or multiple simultaneous channels
- Audio Intercom functionality

Scheduling

- Up to 10 Recording schedules with Holidays and Exception Days
- Task Schedules with Holidays, Exception Days, and recurring schedule support
- Per camera settings for minimum and maximum recording times
- Per camera, per recording schedule frame rate and quality settings for live, normal recording, motion recording, and alarm recording

Event Handling

- Event list with device events (e.g. video loss), system events (e.g. disk full), SNMP traps from network devices (e.g., heavy network traffic), subsystem events (e.g. Allegiant alarm), user events (e.g. logon failure), schedule events (e.g. every Tuesday at 10:15), etc.
- Compound events (combining events with Boolean logic)
- Event duplication allowing separate handling
- Event allocation to user groups
- Schedule dependent alarm generation
- Schedule dependent event logging
- Schedule dependent event-generated Command Script invocation

Alarm Handling

- Alarms can trigger alarm-mode recording for any cameras
- 100 alarm priorities
- Selective auto-popup on alarm
- Alarms displayed in separate alarm window
- Up to 5 Image panes per alarm with live or playback video, sitemaps, documents, or web pages displayed in an “alarm row”, with highest priority alarms on top
- Audio file per alarm

- Workflow with user instructions and user comments, optionally forced before clearing
- Email or SMS notification on alarm
- Alarm display on analog monitor walls
- Alarm auto clear options either time or state dependent

User Management

- LDAP compatible for integration with enterprise user management systems such as Microsoft Active Directory
- Access to system resources individually controlled per user group
- Logical Tree customized per user group – users only see devices for which they have access
- User group rights for protecting, deleting, exporting, and printing video
- User group rights for Logbook access
- User group priority assignment for PTZ control and Allegiant camera access
- Individual per-camera privileges assignable per user group for live access, playback, audio, meta data display, dome control
- Dual-authorization logon – special privileges and priorities granted when two users log on together

System Monitoring

- System-wide health monitoring, including cameras, computers, software, and network equipment
- Network equipment and other third-party devices monitored with SNMP

Customization and Interfacing

- Custom Command Scripts can control all system functionality
- Built in Command Script editor supporting C# and Visual Basic .Net
- External software can trigger events and send metadata via “Virtual Inputs”
- Any .Net programming language (C#, JScript, etc.) or COM programming language (C++, Visual Basic, etc.) can be used to trigger Virtual Inputs
- Other systems can control the virtual matrix with Allegiant CCL commands that can be sent via RS232
- Compatible with Bosch Building Integration System
- Compatible with Advantech ADAM-6000 series Digital Input / Output modules

Parts Included

- The following are delivered on DVD:
 - Installation program that can selectively install all components (Central Server software, Network Video Recorder software, Video Recording Manager software, Configuration Client software, Operator Client software) in all supported languages
 - Configuration Manual (PDF format) in all supported languages (except Arabic)
 - Operator's Manual (PDF format) in all supported languages (except Arabic)
- Software license key document
- Quick Start Manual in English, French, German, Simplified Chinese and Spanish

Technical Specifications

System Specifications

Maximum number of workstations simultaneously viewing the same camera	Multicast: 20 Unicast: 5
Supported languages	English, German, Dutch, Italian, Portuguese, French, Spanish, Simplified Chinese, Traditional Chinese, Russian, Hungarian, Japanese, Czech, Danish, Finnish, Greek, Norwegian, Polish, Swedish, Thai, Turkish, Korean, and Arabic
Anti-Virus software must not perform a full-scan. Performance may decrease depending on configuration.	
Event reaction time	<1 second, assuming sufficient network bandwidth
Alarm reaction time (incl. 1 live Image pane, 1 instant playback Image pane and 1 map Image pane):	Maximum 2 seconds, assuming sufficient network bandwidth
Bandwidth requirements	Min. 1 Gbps for connections between: Operator Client to Central Server Operator Client to NVR/VRM/DiBos Central Server to NVR/VRM/DiBos

Required open ports

Connection from Central Server and Client Workstations to NVRs:

Two selectable TCP ports (default 5390 and 5391)

Connection to Operator Client Workstations by BVMS SDK:

One selectable TCP port (default 5394)

Connection from Central Server to SMTP (for email notifications):

TCP Port 25

Connection to Bosch encoders and decoders:

Control channel: TCP ports 80 and 1756

Network scan: UDP ports 1757 and 1758

Multicast detection: one selectable UDP port (default 1900)

Multicast video transmission:

For each encoder audio or video stream, 1 selectable UDP port

Unicast UDP transmission: UDP ports dynamically assigned in the range from 1024 to 65000

Connection to DiBos DVRs (uses DCOM):

TCP Port 135 plus four TCP ports and four UDP ports dynamically assigned in the range from 1025 to 65535

Central Server Specifications

Maximum number of sustained events	For highest performance server, e.g. MHW-SL5M4: 5,000 events/s at peaks 2,500,000 events/h received 500,000 events/h thereof written to the system log (Logbook)
Central Server Redundancy	Available with hardware and software solutions upon request. Please contact Bosch Design Engineer for all redundancy solutions.
Maximum number of Task Schedules	200

NVR Specifications

Maximum number of cameras and data rate per NVR, for advanced performance server, e.g. MHW-SM5M2 and Bosch DVA-8K, DVA-16K (AV multistream on, rebuild priority low)

Continuous or motion or alarm recording and 4 playback clients with 4 Image panes each:	64 cameras @ 25 IPS / 4 CIF / 2 Mbps
Continuous (1IPS) and motion or alarm recording and 4 playback clients with 4 Image panes each:	Continuous recording: 64 cameras @ 1 IPS / 2 CIF / 1,5 Mbps Motion or alarm: 64 cameras @ 25 IPS / 4 CIF / 2 Mbps
Motion with pre-motion and alarm with pre-alarm recording and 4 playback clients with 4 Image panes each:	Pre-motion / alarm recording: 64 cameras @ 1 IPS / 2 CIF / 1,5 Mbps Motion / alarm: 64 cameras @ 25 IPS / 4 CIF / 2 Mbps
Redundancy	Failover NVR can be assigned to take over for a failed NVR. Multiple Primary NVRs can be assigned to the same Failover NVR. Redundant NVR can be assigned to a Primary NVR.
Maximum number of Primary NVRs serviced by a Failover NVR	2
Maximum number of NVRs per Central Server	2 For higher camera numbers use VRM.
Device compatibility	H.264 encoders and cameras are not supported.

VRM Specifications

Maximum count of VRM servers per Central Server	5
Maximum data rate per iSCSI	For Bosch DVA-12TK: 200 Mbps
Maximum IP cameras/encoders per iSCSI	For Bosch DVA-12T: 48 concurrent iSCSI connections For Bosch-NetApp DSA Series: NetApp 2020 and NetApp 2050: 128 concurrent iSCSI connections NetApp 2040: 256 concurrent iSCSI sessions
Maximum number IP cameras/encoders channels per Central Server	500
Max. number of Replay Sessions	32
Minimum Client Workstation PC Requirements	
Operation System	Windows XP Professional, Service Pack 3 (32-bit only)
CPU	Intel Core 2 Duo 2.66 GHz or greater
RAM	2 GB or greater
Free disk space	500 MB
Network card	1000Base-T

Display Resolution	Minimum per monitor 1024x768, 1280x1024 or greater recommended
Recommended Graphics Cards	2 monitors, Entry: - ATI 3700 - NVIDIA FX 380 - NVIDIA FX 580 2 monitors, Mid-range: - ATI 5700 - NVIDIA FX 4800 - NVIDIA FX 1800 - NVIDIA FX 1700 - NVIDIA FX 1700 x2 4 monitors, Professional: - NVIDIA NVS295 2 monitors, High-end: - NVIDIA FX 4800

Minimum Central Server PC Requirements

Operation System	Window 2003 Server, Service Pack 2 (32-bit only) For All-in-one systems and maximum 32 IP cameras/encoders: Windows XP Professional, Service Pack 3 (32-bit only)
CPU	Intel Dual-Core Xeon 2.66 GHz
RAM	4 GB or greater
Free disk space	15 GB
Network card	1000Base-T
Display Resolution	1024x768 or greater

Minimum NVR Server PC Requirements

Operation System	Windows XP Professional, Service Pack 3 (32-bit only), Windows 2003 Server, Service Pack 2 (32-bit only)
CPU	Intel Dual-Core Xeon 2.66 GHz
RAM	2 GB or greater
Free disk space	500 MB + Video Storage
Hard disk drives	Minimum: separate partition for video storage Separate drive for video storage recommended
Network card	1000Base-T
Display Resolution	1024x768 or greater

Minimum VRM Server PC Requirements

Operation System	Windows XP Professional, Service Pack 3 (32-bit only), Windows 2003 Server, Service Pack 2 (32-bit only)
CPU	3 GHz Intel Pentium 4 or later, 3 GHz Intel Xeon or later recommended
RAM	Minimum 2 GB
Free disk space	500 MB
Network card	1000Base-T
Display Resolution	1024x768 or greater

Device Compatibility

Analog Matrix Switch	Bosch Allegiant series, firmware 8.75 or later and Master Control Software version 2.91
CCTV Keyboard	Bosch Intuikey (KBD-Universal or KBD-Digital), firmware version 1.95 or later
Digital I/O	Digital I/O Advantech ADAM-6050, ADAM-6052, ADAM-6060, ADAM-6066
Digital Video Recorder	DiBos, firmware version 8.7 Maximum 50 DiBos recorders per Central Server
USB to Serial adapter	Belkin serial adapter cable F5U103vea
Ethernet to Serial adapter	Control DeviceMaster RTS 4-Port
IP Devices	VIP-X Series encoders and cameras H.264 Series encoders and cameras MPEG-4, H.264 Main Profile, H.264 Baseline Plus are supported (H.264 Baseline and MPEG-2 not supported)

Ordering Information

Demoverison - Non Expandable 1 Forensic Search license included.	MBV-BDEM-22
Lite-32-Edition - Non Expandable Supports 32 Cameras, 2 Workstations, 1 CCTV Keyboard, 0 DVRs – Non Expandable 1 Forensic Search license included.	MBV-BLIT32-22
Lite-64 Edition - Non Expandable Supports 64 cameras, 4 Workstations, 2 CCTV Keyboards, 0 DVRs – Non Expandable 2 Forensic Search licenses included.	MBV-BLIT64-22
Professional Edition Supports 8 Cameras, 2 Workstations, 1 CCTV Keyboard, 1 DVR All MBV-X* and MBV-F* can only be combined with the Professional Edition. 1 Forensic Search license included.	MBV-BPRO-22
1 Channel Expansion Expansion, order the exact number required. For example, if you order 128 units you can use 128 cameras/decoders in your Bosch VMS. Only those cameras need be counted which are shown in the Logical Tree.	MBV-XCHAN-22
1 Workstation Expansion Expansion, order the exact number required.	MBV-XWST-22
1 DVR Expansion Expansion, order the exact number required.	MBV-XDVR-22
1 CCTV Keyboard Expansion Expansion, order the exact number required.	MBV-XKBD-22
1 Failover NVR Expansion Expansion, order the exact number required.	MBV-XFON-22
1 Redundant NVR Expansion Expansion, order the exact number required.	MBV-XRN-22

Ordering Information

1 Forensic Search Expansion

Expansion, order the exact number required.
You need one license per Workstation, not
per camera or encoder.

MBV-XFOREN-22

Allegiant Matrix Connection**MBV-FALG-22**

ATM/POS Connection**MBV-FATM-22**

OPC Server Connection**MBV-FOPC-22**

VIDOS Video Management System



Features

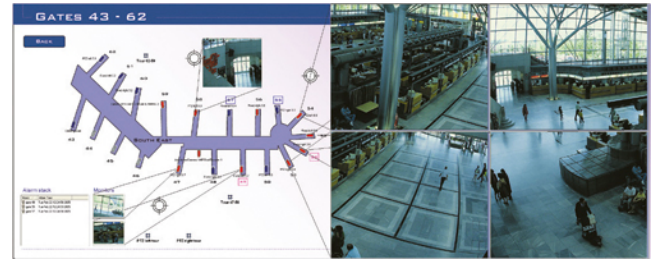
- ▶ **All-in-one video management centre solution**
- ▶ **Site-map based user interface**
- ▶ **Analog monitor support**
- ▶ **Database-driven system management**
- ▶ **Extensive alarm handling**
- ▶ **Automated guard tours**

VIDOS Installation Package

This installation provides a powerful and fully customizable video management system. It installs VIDOS, the VIDOS Archive Player & Exporter, the Configuration Manager and the necessary software environment as a 30-day trial version. The installation can then be licensed according to the application's requirements and configured to run as a stand-alone workstation or to work as a client for VIDOS Server.

Exporter in VIDOS Archive Player, VIDOS Automation Interface and VIDOS Intuikey Integration require separate licenses.

Together with the other powerful components in the VIDOS Pro Software Suite including VIDOS Lite Viewer and VIDOS Monitor Wall applications, this installation package with VIDOS, VIDOS Archive Player & Exporter and the Configuration Manager is ideally suited to CCTV applications of any scale. Built-in scripting and application programmer's interfaces (APIs), like the Automation Interface to remotely control VIDOS, allow for easy integration with, or the enhancement of existing security solutions.



VIDOS

VIDOS is a unique and powerful video surveillance and alarm management software product that enables security and surveillance professionals to perform sophisticated tasks with ease. Based on the intuitive graphical concept of site-maps, VIDOS puts the operator firmly in control of the world around him.

VIDOS is fully customizable, allowing you to run your CCTV system the way you want to and keeping training down to a minimum. Additionally, CCTV keyboard integration enables the operator to control all devices, alarms and even sitemaps in the same way as controlling a conventional system.

VIDOS integrates with all existing peripheral equipment like dome cameras and analog monitors. With its sophisticated touring and patrolling functions, automatic recording tasks and comprehensive archive features VIDOS offers functionality and performance unprecedented in CCTV applications.

As part of the VIDOS Pro Software Suite, VIDOS may act as a client in combination with VIDOS Server enabling centralized management and control. This enables an administrator to set different authorization levels for groups of users, which in turn controls VIDOS client privileges for live viewing, PTZ, recording and retrieval.

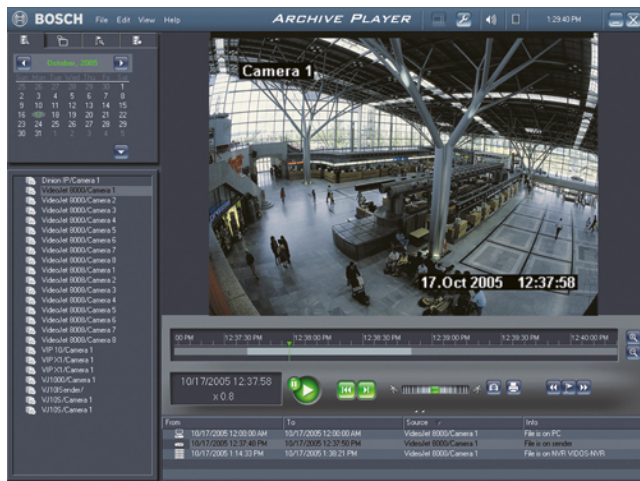
In environments where IP cameras and encoders record directly to iSCSI drives and VRM Video Recording Manager controls the storage assignment, VRM Server can be used instead of VIDOS Server to ensure consistent system configuration.

In smaller applications, where only a few users, authorisation levels, privileges and priorities are required, it may act as a full-blown video management system solution in itself, controlling an unlimited number of cameras.

VIDOS is available as software only, supporting 16, 32, 64 or an unlimited number of cameras and monitors. There is also a choice of two pre-configured hardware solutions for easiest and fastest integration.

VIDOS Archive Player & Exporter

VIDOS Archive Player & Exporter, part of the VIDOS Pro Video Management Software Suite, allows operators to very easily search and playback pre-recorded video and events and export them for subsequent use. The software allows operators to replay from any encoder, NVR, iSCSI drive, or local hard disc, search for video sequences and bookmarks and simply export sequences.



VIDOS Archive Player & Exporter presents a quick and easy to use interface that is designed to accelerate the process of browsing available recordings and uses intuitive time and calendar features to home in on specific events and bookmarks. By instantaneously switching between replay and export screens the search time is further minimized. All search results are tracked in concise lists that can easily be processed for export to other storage media. With the integrated Direct-Burn function, the export files can be directly written to CD/DVD (assuming a CD/DVD-RW drive is attached). Forensic Search in Archive Player allows to search over recorded metadata created by encoders or cameras running VCA (like MOTION+, IVMD, or IVA). Search parameters can be redefined to find objects which did not trigger an alarm initially.

As part of the VIDOS Pro Software Suite, VIDEOS Archive Player & Exporter can be used in combination with VIDOS Server or VRM Server which offer centralized management and control. This enables an administrator to set user privileges, and their right to access cameras and recordings via VIDEOS Archive Player & Exporter.

VIDOS Automation Interface

The VIDOS Automation Interface provides remote control and supervision via a socket interface. It resembles a „programmer's style“ ASCII string command interface for video and audio switching, to control digital I/O and alarms, to control workspace and for event subscription and delivery. The VIDOS Automation Interface provides two basic mechanisms: one for issuing synchronous commands and one for receiving event information. To ensure authenticity the external controller needs to login with username and password.

Access to the automation interface must be explicitly enabled and is password protectable.



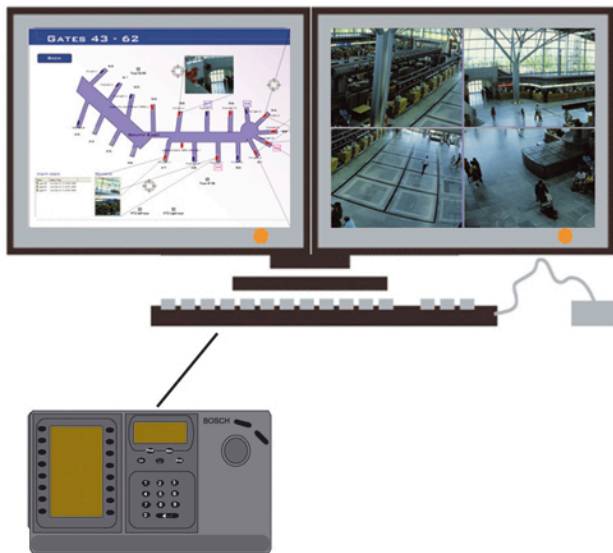
1 External controller

VIDOS IntuiKey Integration

Use the ergonomic advances of the Bosch IntuiKey CCTV keyboard for full control of networked surveillance. Almost all VIDOS functions are accessible without the need for mouse or PC keyboard access of the operator, bringing the traditional matrix input device to a new level of experience.

Ease the migration from the analogue to the digital world by switching cameras and monitors via the keypad. Control the pan, tilt and zoom positions via the joystick and use the camera menu for accessing all auxiliary AutoDome functions. Direct keys are available for recalling camera presets and acknowledging alarms. Four direct menu keys provide quick access to functions for user authentication, recording and snapshots, sitemap navigation, camera menus and replay control.

The Bosch IntuiKey unique custom programmable softkey feature enables up to six fully programmable softkeys per sitemap for guided map navigation and device control.



VIDOS Virtual Matrix Keyboard

For easier migration it is possible to connect up to ten IntuiKey CCTV keyboards remotely via decoders like VIP XD or VIP X1600 XFMD. Thus you also save costs as less PC hardware is necessary. The remote keyboards are virtually working as if directly connected to the VIDEOS workstation.

Technical Specifications

Minimum System Requirements

Hardware	Personal Computer
CPU	Pentium IV, 3.0 GHz or better
Hard Disk Interface	IDE or better
RAM	256 MB
OS	Windows XP Home/XP Professional
Graphic Card	NVIDIA GeForce 6600 NVIDIA Quadro FX 1400 ATI RADEON X600/X800 or better
Ethernet Card	1000 Mbps
Sound Card	Recommended
Software	DirectX 9.0c
Free Memory (Installation)	120 MB (.NET environment, VIDEOS, VIDEOS Archive Player, Configuration Manager)

Software Features

VIDOS

Tree View	User configurable, Explorer style resource tree
Display	Drag and drop connection control User definable video windows Built-in electronic zoom function Simultaneous viewing of several video streams Full screen mode viewing On-screen or in picture PTZ camera control Multiple, user definable workspaces

VIDOS

	Window snap organizer Addition of multiple external monitors JPEG snapshot overview of all connected devices
Scan Network	Autoscan function over the complete network JPEG snapshot overview of all devices Remote upload of devices via LAN/WAN Scan result copy to a clipboard by one mouse click
Site Map	Built-in site map editor Background bitmap graphics User definable symbols with programmable functions, e.g. Hyperlinks Fully scalable and movable software monitors External hardware monitor support Automatic camera activation on alarm
Configuration	User groups and privileges Device properties Device COMs for remote camera control Preset camera sequences (Salvos)
Trigger and Alarm	Logical trigger creation Scheduler Alarm stack log Programmable alarm triggered jobs Integrated alarm testing Action plans for alarm handling
Recording	Recording configuration in encoders Simultaneous recording of video, audio and transparent data Scheduled and alarm recording Ring recording function per camera Synchronous playback of multiple cameras JPEG snapshot
NVR (option)	Full Network Video Recording functionality and advanced recording features by implementation of VIDEOS-NVR modules (see respective data sheet)

VIDOS Archive Player

Tree View	User configurable resource tree
Replay	From VIP/VideoJet devices, NVR and local hard disc Calendar and time range search function Bookmark setting and search function Built-in digital zoom function Dynamic timeline Trick mode replay Full screen mode JPEG snapshot with direct print function
Export (option)	Simultaneous export of video and audio of multiple recordings Direct burn on CD
Forensic Search (option)	Search over VCA-generated metadata

VIDOS Archive Player

	Redefine search parameters so that objects trigger an alarm even if they did not do so initially
Configuration	Through Configuration Manager

Ordering Information

VIDOS16CH VIDOS 16 Channels VIDOS stand-alone license for 16 channels	VIDOS16CH
VIDOS32CH VIDOS 32 channels VIDOS stand-alone license for 32 channels	VIDOS32CH
VIDOS64CH VIDOS 64 channels VIDOS stand-alone license for 64 channels	VIDOS64CH
VIDOSUNLIM VIDOS unlimited channels VIDOS stand-alone license for unlimited no. of channels	VIDOSUNLIM
VIDOS16CH-5P VIDOS 16 chan. 5-pack VIDOS stand-alone license for 16 channels 5-pack	VIDOS16CH-5P
VIDOS32CH-5P VIDOS 32 chan. 5-pack VIDOS stand-alone license for 32 channels 5-pack	VIDOS32CH-5P
VIDOS64CH-5P VIDOS 64 chan. 5-pack VIDOS stand-alone license for 64 channels 5-pack	VIDOS64CH-5P
VIDOSUNLIM-5P VIDOS unlimited 5-pack VIDOS stand-alone license for unlimited no. of channels 5-pack	VIDOSUNLIM-5P
VIDOS16CH-10P VIDOS 16 chan. 10-pack VIDOS stand-alone for 16 channels 10-pack	VIDOS16CH-10P
VIDOS32CH-10P VIDOS 32 chan. 10-pack VIDOS stand-alone license for 32 channels 10-pack	VIDOS32CH-10P
VIDOS64CH-10P VIDOS 64 chan. 10-pack VIDOS stand-alone license for 64 channels 10-pack	VIDOS64CH-10P
VIDOSUNLIM-10P VIDOS unlimited 10-pack VIDOS stand-alone license for unlimited no. of channels 10-pack	VIDOSUNLIM-10P
VIDOS UPGR 16 TO 32 CH VIDOS upgrade license for 1 PC from 16 to 32 cameras and monitors (e-license)	3504B100
VIDOS UPGR 16 TO 64 CH VIDOS upgrade license for 1 PC from 16 to 64 cameras and monitors (e-license)	3504B200
VIDOS UPGR 16 TO UNLIM VIDOS upgrade license for 1 PC from 16 to unlimited cameras and monitors (e-license)	3504B300
VIDOS UPGR 32 TO 64 CH VIDOS upgrade license for 1 PC from 32 to 64 cameras and monitors (e-license)	3504B400
VIDOS UPGR 32 TO UNLIM VIDOS upgrade license for 1 PC from 32 to unlimited cameras and monitors (e-license)	3504B500
VIDOS UPGR 64 TO UNLIM VIDOS upgrade license for 1 PC from 64 to unlimited cameras and monitors (e-license)	3504B600

Ordering Information

VIDOSCL VIDOS Client License VIDOS Client License per PC w/o cameras	VIDOSCL
VIDOSCL-5P VIDOS Client 5-pack VIDOS Client License per PC w/o cameras 5-pack	VIDOSCL-5P
VIDOSCL-10P VIDOS Client 10-pack VIDOS Client License per PC w/o cameras 10-pack	VIDOSCL-10P
VIDOSAPEXPT AP Export Tool Archive Player License for Export Tool per PC	VIDOSAPEXPT
VIDOSAPEXPT-5P AP Export 5-pack Archive Player License for Export Tool per PC 5-pack	VIDOSAPEXPT-5P
VIDOSAPEXPT-10P AP Export 10-pack Archive Player License for Export Tool per PC 10-pack	VIDOSAPEXPT-10P
VIDOSKBD IntuiKey Keyboard License IntuiKey Keyboard License (e-license)	VIDOSKBD
VIDOSKBD-5P IntuiKey Keyboard License 5-pack IntuiKey Keyboard License 5-pack (e-license)	VIDOSKBD-5P
VIDOSKBD-10P IntuiKey Keyboard License 10-pack IntuiKey Keyboard License 10-pack (e-license)	VIDOSKBD-10P
VIDOSAUTO VIDOS Automation IF VIDOS Automation Interface License per VIDOS PC (e-license)	VIDOSAUTO
VIDOSAUTO-5P VIDOS Autom. IF 5-pack VIDOS Automation Interface License per VIDOS PC 5-pack (e-license)	VIDOSAUTO-5P
VIDOSAUTO-10P VIDOS Autom. IF 10-pack VIDOS Automation Interface License per VIDOS PC 10-pack (e-license)	VIDOSAUTO-10P

Software Options

MVC-FAPFS Archive Player IVA Forensic Search license	MVC-FAPFS
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Bosch Video-over-IP (BVIP) Lite Suite



Features

- ▶ Live viewing of multiple cameras
- ▶ Local recording and snapshots
- ▶ PTZ and lens control and Digital Zoom
- ▶ Automated guard tours (Salvos)
- ▶ Playback from iSCSI, NVR, VRM and local hard disc
- ▶ Camera and event search
- ▶ Instant replay and trick mode playback

BVIP Lite Suite Installation Package

This installation package provides an easy and intuitively to use video management workstation. It installs Viewer, Archive Player, Configuration Manager, and the necessary software environment. The installation can then be licensed according to the application's requirements and configured to run as a stand-alone workstation or to work as a client for VIDOS Server or VRM Server.

BVIP Lite Suite with Viewer, Archive Player and Configuration Manager is ideally suited to CCTV applications of small to medium scale.

BVIP Lite Suite can serve as a viewing and replay client in combination with VIDOS or VRM Server which allows centralized management and control. This enables an administrator to set different authorization levels for users, cameras, monitors and alarms that are the basis for Viewer client and Archive Player access to live viewing, PTZ control, recording and retrieval.

Viewer is supporting up to 16 cameras without licensing and can be expanded to up to 64 cameras. Archive Player does not need a license except for its export function, IntuiKey support and Forensic Search.

Viewer

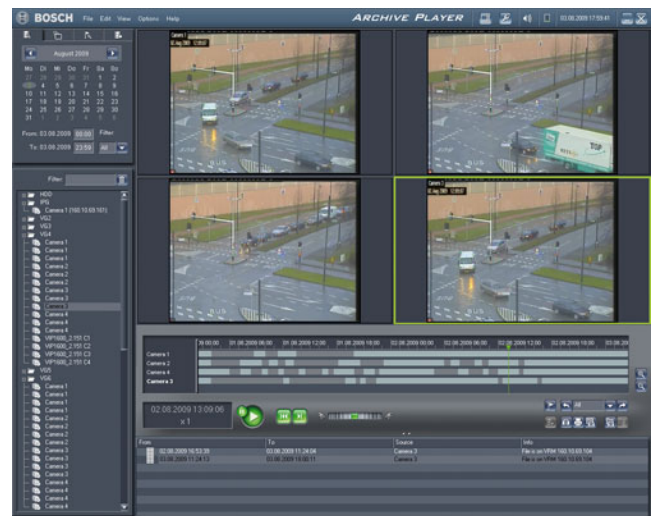
Viewer is an easy-to-handle, entry-level application that enables an operator to control professional security and surveillance systems with the ease of a mouse click. With its intuitive graphical user interface, controlling cameras is as simple as drag-and-drop. For instant use, the video window layout can be selected from pre-defined settings and quickly changed on-the-fly according to the situation's need.

Viewer integrates with all existing peripheral equipment like dome cameras and multiplexers. With its sophisticated touring and patrolling functions, recording and archive features Viewer is offering far more than simple viewing.

Every camera can be recorded locally on the PC hard drive for later replay with the Archive Player which is seamlessly integrated. Also snapshots can be stored from any camera at any time or sent by e-mail.

Archive Player

Archive Player enables operators to very easily search and playback pre-recorded video and events and export them for subsequent use. The software allows operators to replay from any iSCSI, NVR, VRM or local hard disc, search for video sequences, bookmarks and simply export sequences.



Archive Player presents a quick and easy to use interface that is designed to accelerate the process of browsing available recordings and uses intuitive time and calendar features to home in on specific events and bookmarks. By instantaneously switching between replay and export screens the search time is further minimized. All search results are tracked in concise lists that can easily be processed for export to other storage media. With the integrated Direct-Burn function, the export files can be directly written to CD or DVD (assuming a CD/DVD-RW drive is attached). Files can be exported in Windows Media Format as well.

Use the ergonomic advances of the Bosch IntuiKey CCTV keyboard for full control of trick mode replay. Almost all Archive Player functions are accessible without the need for mouse or PC keyboard access of the operator, bringing the traditional matrix input device to a new level of experience. Ease the migration from the analogue to the digital world by switching cameras and monitors via the keypad. Control the replay speed and direction via the joystick and use the softkeys for quick inside Archive Player navigation.

The Bosch IntuiKey unique custom programmable softkey feature enables up to six fully programmable softkeys per selected Archive Player main functions like replay, zoom, export, or search.

Use the versatile timeline and its controls for quick and easy access to any event or scene for multiple simultaneous replays.

When trick mode is selected the controls allow to single step or fast step forward and backward in all multiple replays in highly accurate synchronicity.

Even quicker browsing through recordings can be achieved by scratching over the timeline. This method, similar to audio scratching on long plays, produces fast image updates from the time where being scratched over and thus allows fast finding of the target scene.

Intuitive mouse controls allow zooming of the timeline and quick marking of search areas or export selections.

Both, Viewer and Archive Player can have hardware monitors (decoders) assigned to specific software monitors. Dragging a camera or recording into such a software monitor automatically pulls the same video of a camera or recording to the assigned hardware monitor, which could be e.g. a VIP-XD in single- or quad-view.

Configuration Manager

Configuration Manager is the heart of system configuration. It helps controlling the settings of all connected devices as well as the system settings.

Configuration Manager provides user levels for the non-experienced user as well as for the sophisticated administrator. A Wizard helps to configure new devices easily with a few clear steps. Via the device allocator, cameras and encoders can easily be added to the system and grouped for easier finding in the device tree. A table view allows to export and archive specific system settings for later reference. All licensing of the system is also handled via Configuration Manager.

Technical Specifications

System Requirements

Hardware	Personal Computer
CPU	Dual Core, 3.0 GHz or better
RAM	2 GB min
OS	Windows XP Home/XP Professional SP2/SP3, Windows Vista SP1/SP2
Graphic Card	NVIDIA GeForce 7950 GT NVIDIA Quadro FX 3500 PCIe NVIDIA Quadro FX 3700 PCIe NVIDIA Quadro FX 1500 PCIe NVIDIA Quadro FX 1700 PCIe NVIDIA Quadro FX 4500 PCIe NVIDIA Quadro FX 4600 PCIe NVIDIA Quadro NVS 285 PCIe NVIDIA Quadro NVS 440 PCIe NVIDIA Quadro NVS 570 PCIe ATI FireGL V7200 PCIe ATI FireGL V3300 PCIe ATI Radeon X1300
Ethernet Card	100 MB/s
Sound Card	Recommended
Software	DirectX 9.0
Free Memory (Installation)	145 MB (.NET environment, Viewer, Archive Player, Configuration Manager, MPEG-ActiveX)

Software Features

Viewer

Tree View	User configurable resource tree
Display	Connection control by drag-and-drop User selectable video windows Built-in digital zoom function Simultaneous viewing of several video streams Full screen mode viewing On-screen or in picture PTZ camera control dialog
Configuration	Through Configuration Manager Up to 3 levels of camera groups Settings of devices Hardware monitor assignment Programming of preset camera sequences (Salvos)
Recording	JPEG snapshots Simultaneous recording of video and audio of multiple cameras

Archive Player

Tree View	User configurable resource tree Grouping up to 3 levels
Replay	From VIP/VideoJet devices, NVR, VRM and local hard disc Built-in digital zoom function Dynamic timeline Trick mode replay Video scratching

Archive Player

	Full-screen mode
	JPEG snapshot with direct print function
Search	Calendar and time range search function
	Bookmark setting and search function
	Forensic Search on IVMD metadata (license option)
Intuikey	Supported (license option)
Export	Simultaneous export of video and audio of multiple recordings (license option)
	Direct burn on CD or DVD
Configuration	Through Configuration Manager
	Up to 3 levels of camera groups
	Settings of devices
	Hardware monitor assignment

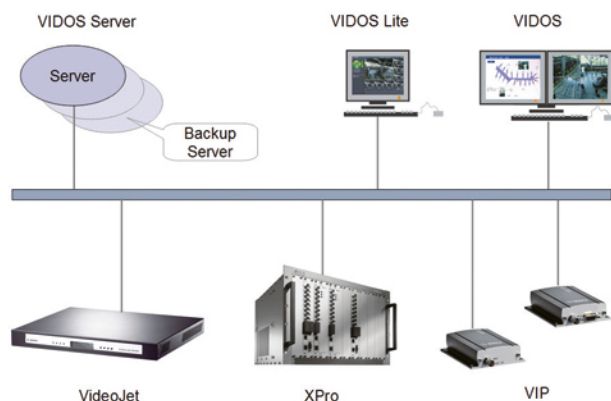
Ordering Information

VIDOSLV32CAM Viewer 32 cam Viewer with license for 32 cameras (e-license)	VIDOSLV32CAM
VIDOSLV64CAM Viewer 64 cam Viewer with license for 64 cameras (e-license)	VIDOSLV64CAM
VIDOSLV8UPG Viewer 8 Upgrade Viewer license for expansion by 8 cameras (e-license)	VIDOSLV8UPG
VIDOSLV16UPG Viewer 16 Upgrade Viewer license for expansion by 16 cameras (e-license)	VIDOSLV16UPG
VIDOSLVCL Viewer Client License Viewer with Client License per PC w/o cameras	VIDOSLVCL
VIDOSLVCL-5P Viewer Client 5-pack Viewer with Client License per PC w/o cameras 5-pack	VIDOSLVCL-5P
VIDOSLVCL-10P Viewer Client 10-pack Viewer with Client License per PC w/o cameras 10-pack	VIDOSLVCL-10P
MVC-FAPFS Archive Player IVA Forensic Search license	MVC-FAPFS

Software Options

VIDOSKBD IntuiKey Keyboard License IntuiKey Keyboard License (e-license)	VIDOSKBD
VIDOSKBD-5P IntuiKey Keyboard License 5-pack IntuiKey Keyboard License 5-pack (e-license)	VIDOSKBD-5P
VIDOSKBD-10P IntuiKey Keyboard License 10-pack IntuiKey Keyboard License 10-pack (e-license)	VIDOSKBD-10P

VIDOS Server

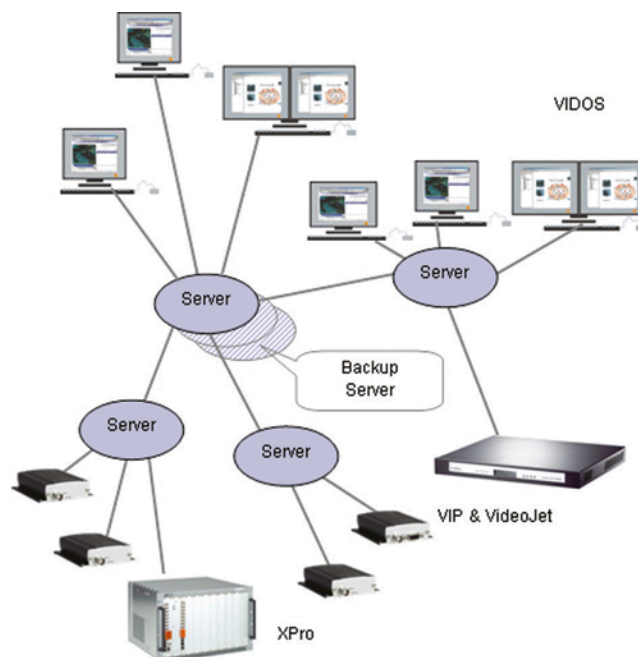


Features

- ▶ **Unlimited number of users**
- ▶ **User management with 32 user groups**
- ▶ **Device Access Control**
- ▶ **Hierarchical server structure**
- ▶ **Up to two backup servers per server**
- ▶ **Standard database access**
- ▶ **Event logging and management**

VIDOS Server is the powerful heart for professional IP security, video surveillance and alarm management solutions. In combination with VIDOS clients, it enables users to manage and operate complex client/server applications. VIDOS Server ensures that these mission critical applications use full server redundancy to maintain extremely high levels of reliability.

As part of the VIDOS Pro Software Suite, VIDOS Server allows centralized management and control in a hierarchical structure. This enables an administrator to set different authorisation levels or privileges for user groups that are the basis for all VIDOS clients and users for access to configuration, live viewing, PTZ control, recording and retrieval.



A VIDOS Server can be configured to be master server and/or user server, which has the purpose to provide a single central location for all users and user groups. Both configuration types may be backed-up by other servers configured as backup servers.

A VIDOS Server can also have connections to other master servers, thus enabling CCTV system designers to create complex, far-reaching and redundant surveillance networks with still a unique configuration throughout the system.

Together with the other powerful components in the VIDOS Pro Software Suite, including the Configuration Manager, VIDOS, VIDOS Lite Viewer, Archive Player and Exporter and VIDOS Monitor Wall applications, it is ideally suited for CCTV applications of any scale.

VIDOS Server is available as software that can be licensed to support a virtually unlimited number of users. It can be installed on a VIDOS client workstation and, depending on the performance required, run in the background of VIDOS client, or on a stand-alone server. For added convenience there is also a choice of pre-configured hardware solutions.

Technical Specifications

System Requirements

Hardware	Personal Computer
CPU	Pentium IV, 1.8 GHz or better
Hard Disk Interface	IDE or better
RAM	256 MB
OS	Windows XP Home/XP Professional
	Windows 2000 SP3 32-bit
	Windows Server 2003 32-bit

Ethernet Card	100 Mb
Free Memory (Inst.)	75 MB (VIDOS Server, Configuration Manager, .NET environment, MPEG ActiveX)
Software Features	
User Management	32 user groups
	Unlimited numbers of users
	Priorities of each user group (dynamic access rights)
Device Management	List of devices that belong to this server
	Privileges per camera for each user group (static access rights)
	User Group privileges can be set to
	- Live viewing
	- View and PTZ control
	- Override
Structure	- No Access
	Hierarchical structure with connections to multiple other master servers
	Central user server to get user groups and users from
	Up to 2 backup servers per master or user server
Configuration	Through Configuration Manager

Ordering Information

VIDOSSRV10CAM VIDEOS Server Base Pack VIDOS Server Base Pack with 10 Cameras License	VIDOSSRV10CAM
VIDOSSRV-5P VIDEOS Server Base Pack 5-pack VIDOS Server License Base Pack with 10 Cameras License 5-pack	VIDOSSRV-5P
VIDOSSRV-10P VIDEOS Server Base Pack 10-pack VIDOS Server License Base Pack with 10 Cameras License 10-pack	VIDOSSRV-10P
VIDOSSRVBK VIDEOS Backup Server VIDOS Backup Server License	VIDOSSRVBK
VIDOSSRVBK-5P VIDEOS Backup SRV 5-pack VIDOS Backup Server License 5-pack	VIDOSSRVBK-5P
VIDOSSRVBK-10P VIDEOS Backup SRV 10-pack VIDOS Backup Server License 10-pack	VIDOSSRVBK-10P
VIDOS SRV 16 CAM UPGR VIDOS Server Upgrade License by 16 Cameras (e-license)	VIDOSSRV16CAM
VIDOS SRV 50 CAM UPGR VIDOS Server Upgrade License by 50 Cameras (e-license)	VIDOSSRV50CAM
VIDOS SRV 100 CAM UPGR VIDOS Server Upgrade License by 100 Cameras (e-license)	VIDOSSRVCAM100

Ordering Information

VIDOS SRV 250 CAM UPGR VIDOS Server Upgrade License by 250 Cameras (e-license)	VIDOSSRVCAM250
VIDOS SRV 500 CAM UPGR VIDOS Server Upgrade License by 500 Cameras (e-license)	VIDOSSRVCAM500

VIDOS Monitor Wall



Features

- ▶ **Employ huge plasma screens in your surveillance center**
- ▶ **View multiple live cameras on a monitor wall**
- ▶ **Multi-channel decoder with single or dual-screen**
- ▶ **Configurable window layout**
- ▶ **Compatible with VIDOS 3.0**
- ▶ **Compatible with all VIP and VideoJet encoders**
- ▶ **Multicasting**

The VIDOS Monitor Wall is a part of the VIDOS Pro Software Suite and is the easiest way to view many cameras on state-of-the-art monitor walls. They are the modern-day replacement for the familiar rows of analog CRT CCTV monitors and they bring very specific benefits. Because the VIDOS Monitor Wall is a digital software solution, it is not constrained by analog monitor dimensions. Instead it will easily drive the most massive to the tiniest displays, including flat panel plasma displays that are becoming so popular in both Network and Security Operations Centers. All the video is delivered by the award-winning high performance VIP and VideoJet MPEG-2 and MPEG-4 encoders.

The VIDOS Monitor Wall can be used in combination with VIDOS 3.0 to enhance display capabilities especially for large control centers. Used with VIDOS Server, which allows centralized management and control, an administrator is able to define user groups and associated privileges which is the basis for VIDOS 3.0 client access to live viewing, PTZ control, recording and retrieval, and eventual presentation on the VIDOS Monitor Wall.

Together with the powerful tools of the VIDOS Pro Software Suite like the Configuration Manager, VIDOS 3.0, VIDOS Lite Viewer and VIDOS Archive Player and Exporter applications it is ideally suited for CCTV applications of any scale.

Depending on the performance of the PC and its graphic adapter, the VIDOS Monitor Wall can run a single or dual screen with different screen layouts, reaching from full screen to 5x5 view on both screens. With VIDOS and scripts using the Automation Interface, the screen layout can even be switched if e.g. an alarm scenario requires a different view.



The VIDOS Monitor Wall is available as software only to be installed on any high-performance PC of your choice, but for added convenience there is also a choice of pre-configured hardware solutions.

Technical Specifications

System Requirements

Hardware	Personal Computer
CPU	Pentium IV, 1.8 GHz or better
Hard Disk Interface	IDE or better
RAM	256 MB
OS	Windows XP Home/XP Professional
Graphic Card	NVIDIA GeForce FX 5700 Ultra, FX 5900 Ultra or FX 5950 Ultra, Matrox Parhelia, ATI RADEON 8500, 9500, 9800 or similar (needs to be selected carefully to meet the application's demand)
Ethernet Card	100 Mb
Sound Card	Recommended
Software	DirectX 9.0
Free Memory (Inst.)	45 MB (.NET environment, MPEG ActiveX, VIDOS Monitor Wall, Configuration Manager)

Software Features

Display	Single or Dual Screen
	Configurable windows
	Simultaneous viewing of multiple video streams. (Performance will vary according to the video compression settings of each stream and the nature of the scene.)
Configuration	Through Configuration Manager
	Automatically through VIDOS

Ordering Information**VIDOSMW VIDOS Monitor Wall License**

Digital software solution to view many cameras on state-of-the-art monitor screens

VIDOSMW

VIDOSMW-5P VIDOS Monitor Wall License

Digital software solution to view many cameras on state-of-the-art monitor screens
5-pack

VIDOSMW-5P

VIDOSMW-10P VIDOS Monitor Wall License

Digital software solution to view many cameras on state-of-the-art monitor screens
10-pack

VIDOSMW-10P

VIDOS-NVR



Features

- ▶ **Record and Playback Video and Audio Archives**
- ▶ **Powerful Search and Retrieval Tools**
- ▶ **ANR Technology (Patent Pending)**
- ▶ **Multiple Recording Modes**
- ▶ **Video Authentication by Watermarking**
- ▶ **Pre-configured for Easy Installation**
- ▶ **Gigabit Ethernet Interface**
- ▶ **Unlimited Scalability**

VIDOS-NVR provides a long-term storage and retrieval solution for video and audio as part of a Video IP installation. Comprised of three key components; management software, a server platform, and RAID 5 storage, VIDOS-NVR scales to handle an unlimited number of cameras and users.

VIDOS-NVR receives MPEG-4 and MPEG-2 video across the network from Video IP encoders including the VIP and VideoJet range. Because VIDOS-NVR is network-based, it is fundamentally different from conventional digital video recorders (DVRs) and video cassette recorders (VCRs). NVRs can be securely positioned anywhere on the network, whereas DVRs and VCRs are colocated where the coax from the cameras terminates. A VIDOS-NVR server has a single gigabit ethernet connection coming in, whereas DVRs and VCRs have one connection for each camera input. This simplification in cabling is a major driver in the adoption of network-based video.

Automatic Network Replenishment technology (ANR; patent pending) ensures that there is no video loss during network interruption. In some facilities, network outages are a real concern; video loss for even a moment is unacceptable.

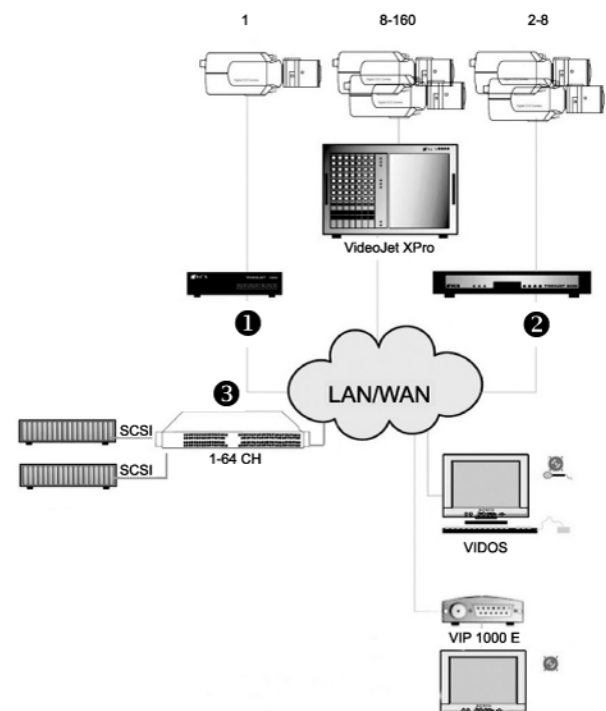
When part of a network carrying video is exposed (as in wireless across a parking lot, or along a highway or train track), the probability of network failure or excessive noise may be even higher. In this setting, VIDOS-NVR tracks every encoder, noting any lapses. Though the encoder is out of reach, it is still recording video locally, either on a compact flash card (VideoJet 10), or on an internal hard drive (VideoJet 8000/8008). When communication is restored, the encoder resumes live transmission and replenishes the gap in the video on the NVR server.

The VIDOS-NVR management software is available per NVR server in three versions; 16, 32, or 64 channel licenses, depending on the number of cameras being recorded. This software is used to configure each NVR server, and once installation and setup are complete, VIDOS-NVR runs seamlessly in the background to manage the connections, access and storage.

VIDOS-NVR has been tested for compatibility with the 19 in. rack-mountable VIDOS-NVR server. This server guarantees high performance and reliability (license purchased separately).

Each VIDOS-NVR server streams incoming video and audio to one or two RAID 5 disk arrays for storage. The 19 in. rack-mountable disk arrays are available in various sizes, ranging from 960 GB to 6.4 TB, and from 6 to 16 hot-swappable hard drives. This offers weeks or months of archived video depending on the system configuration.

Installation/Configuration Notes



- 1 VideoJet 1000 or other single channel encoder
- 2 VideoJet 8008 or other multi-channel encoder
- 3 NVR Server running VIDOS-NVR

Parts Included

Quantity Component

1	VIDOS-NVR Software on CD-ROM (and installed on the device if hardware is ordered)
1	Quick install guide
1	Manual on CD-ROM

Technical Specifications

System Requirements

Hardware	Personal Computer
CPU	Pentium III Xeon or IV, 1.8 GHz or better
HDD Interface	IDE or better; optional: SCSI II, SCSI Ultra or Fibre Channel
RAM	1024 MByte
OS	Windows 2000 32-bit Windows Server 2003 32-bit
Graphic Card	VGA
Ethernet Card	100/1000 MBit
Free Memory (Installation)	20 MByte

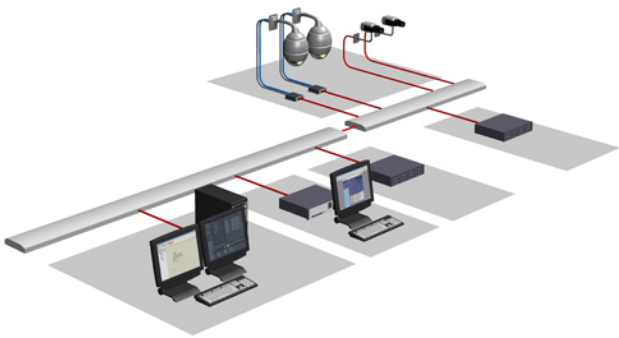
Software Features

Set-up	Centralized set-up from each authorized PC Access via VIDOS or integrated Web server
Storage Media	All storage media possible (e.g. HD, RAID), depending on operating system
Storage Mode	Linear mode or Ring mode (capacity based)
Activation	Continuous Scheduled Alarm-triggered
Recording	Camera name assignment
Configuration	Bandwidth limit Frame rate Video quality
Recording Content	Video data Audio data
Authentication	Watermarking
Search Parameters	Time Date Event
Playback	Playback via VIDOS or Archive Player over any IP network (LAN/WAN) Simultaneous recording, playback and back-up, Sophisticated playback features
Expansion	Limitless expansion of the system by addition of: cameras, video servers, storage devices or capacity, VIDOS-NVR modules

Ordering Information

MVC BNVR 016 VIDOS-NVR 16 channels	MVC-BNVR-016
MVC BNVR 032 VIDOS-NVR 32 channels	MVC-BNVR-032
MVC BNVR 064 VIDOS-NVR 64 channels	MVC-BNVR-064
MVC BNVR 016C VIDOS-NVR 16 channels 5pack	MVC-BNVR-016C
MVC BNVR 032C VIDOS-NVR 32 channels 5pack	MVC-BNVR-032C
MVC BNVR 064C VIDOS-NVR 64 channels 5pack	MVC-BNVR-064C
MVC BNVR 016D VIDOS-NVR 16 channels 10pack	MVC-BNVR-016D
MVC BNVR 032D VIDOS-NVR 32 channels 10pack	MVC-BNVR-032D
MVC BNVR 064D VIDOS-NVR 64 channels 10pack	MVC-BNVR-064D
MVC XNVR 1632 VIDOS-NVR Upgrade 16 to 32 channels (e-li-cense)	MVC-XNVR-1632
MVC XNVR 1664 VIDOS-NVR Upgrade 16 to 64 channels (e-li-cense)	MVC-XNVR-1664
MVC XNVR 3264 VIDOS-NVR Upgrade 32 to 64 channels (e-li-cense)	MVC-XNVR-3264

MVM-BVRM Video Recording Manager v2.0



Features

- ▶ **Manages RAID storage in the Bosch Direct-to-iSCSI CCTV system**
- ▶ **Distributed storage and configurable load balancing**
- ▶ **iSCSI disk array failover for extra reliability**
- ▶ **Used with all Bosch Video-over-IP cameras and encoders**
- ▶ **Configuration support for all Bosch disk arrays (DVA and DSA series)**

Bosch Video Recording Manager (VRM) provides a Distributed Network Video Recorder solution, eliminating the need for dedicated NVRs and signaling the second generation of IP network video recording. VRM supports iSCSI-based storage systems and Bosch Video-over-IP devices (IP cameras and IP video encoders).

VRM introduces the concept of a storage virtualization layer. This abstraction layer enables VRM to manage all of the individual disk arrays in the entire system as a single “virtual” common pool of storage, which is intelligently allocated as needed.

VRM eliminates the need for Network Video Recorders (NVRs) and their associated server hardware, operating systems, and anti-virus software, as well as the ongoing software patches and updates these systems require.

This new technology makes installation, operation, and maintenance much easier while reducing the total cost of ownership.

System Overview

The Video Recording Manager is comprised of the

- Recording Management Service (VRM Server)
- configuration client (VRM Configurator)
- playback client (Archive Player)

The central Recording Management Service runs as a service on Microsoft Windows platforms. Bosch recommends running VRM Server on a dedicated server/hardware platform.

VRM offers system-wide recording, monitoring, and management of Bosch iSCSI storage, video encoders, and cameras.

VRM software supports Bosch MPEG-4 IP video devices including all encoders, Dinion and FlexiDome IP cameras, as well as AutoDome and Extreme IP cameras. Supported storage subsystems include the Bosch iSCSI-based DVA and DSA Series disk array systems. The iSCSI disk arrays can be attached anywhere on a standard IP network.

VRM 2.0 offers additional redundancy and data availability by supporting Automatic Network Replenishment (ANR) with Bosch Video-over-IP devices (BVIP Firmware 4.0 or higher required).

Optimal Performance

The Video Recording Manager offers a high-performance, flexible, scalable, and a highly reliable Direct-to-iSCSI storage management solution.

Optimized performance is obtained by the use of intelligent addressing on a block level, which also allows for load balancing of the video recording to all available storage blocks located on any storage array in the system.

Load balancing is provided with respect to the bandwidth and the number of iSCSI connections and is configurable per IP address (iSCSI target).

Logical Virtualization

The VRM virtualization layer allows for the scalability of storage beyond the physical limits of a single storage subsystem. This logical abstraction layer means that each camera can use any storage space it actually needs, rather than an allocated, arbitrary, discrete chunk ahead of time. Adjust retention times of video data as required.

Fast Recording and Retrieval

VRM provides fast and flexible retrieval via a search database of recordings and metadata. Metadata is a form of data that describes other data such as events, ATM/POS information, and video content analysis data. The metadata is recorded with the video data and provides a fast and efficient way for the search engine, in the playback client, to quickly locate specified video clips. The database also keeps track of the location of recording blocks. If this database is lost, VRM can recreate the database by reading the stored metadata, thus providing a self-healing capability.

Distributed Storage

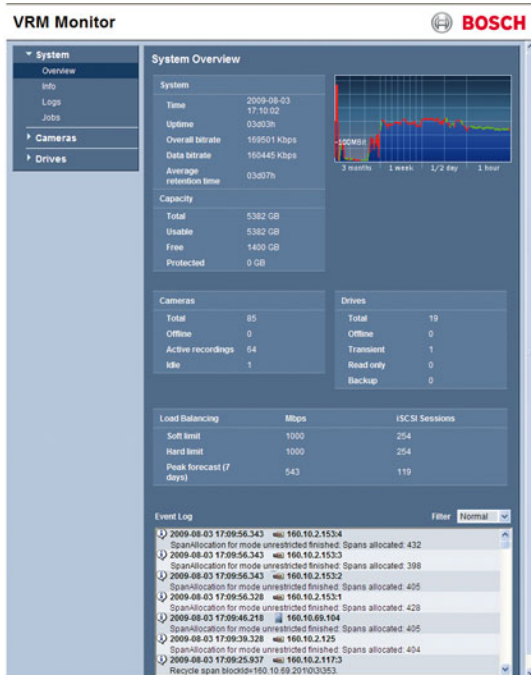
VRM not only provides for redundant management of metadata, it also introduces a significant enhancement of overall reliability and availability. By providing redundancy for storage provisioning and a failover design for the central recording management service, there is no single point of failure. In addition, unlike NVR systems, VRM scales without requiring additional PCs. This greatly reduces the risk of system failures.

Functions

VRM Server

VRM Server, with the central Recording Management Service, provides a time- and event-based scheduler for changing recording properties, and includes a Web-based user interface for status monitoring.

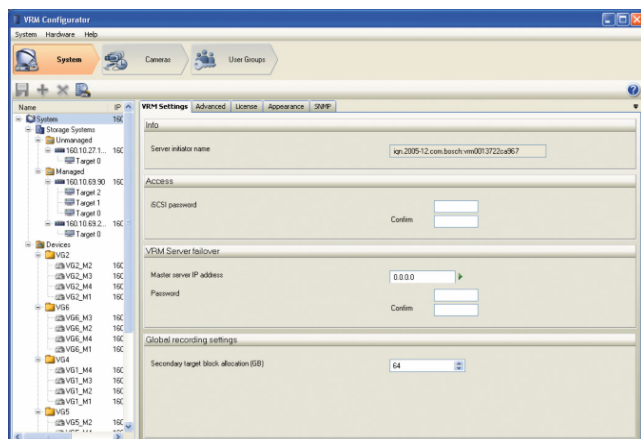
The central scheduler maintains a database containing the recording source information and a list of associated iSCSI drives. The central monitoring allows for system status overview, recording status information, as well as for live view and recording preview for single cameras.



VRM Server

Configuration Client

The configuration client allows for central configuration of the network storage subsystems, recordings (including schedules), data rate, frame rate, stream, and privileges, as well as for managing user accounts.



Configuration Client

Playback Client

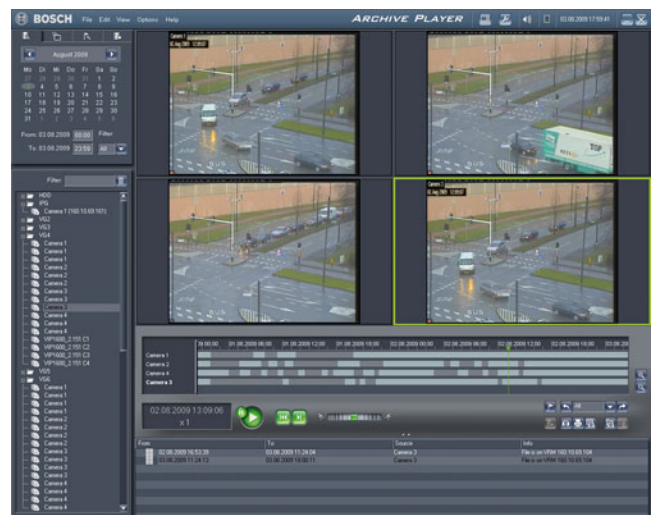
The playback client takes advantage of Bosch's powerful and flexible VideoSDK. Advanced playback capabilities include trick replay with variable-speed forward/reverse play, video export to file, replay of video from file, as well as playback from Bosch video encoders and the VIDOS-NVR.

VRM 2.0 supports two alternative ways of replaying video data: either by directly connecting the replay client to the iSCSI disk arrays or through the VRM Server. When using the direct replay each replay client consumes one iSCSI connection and provides up to 32 simultaneous camera replay sessions. The replay through the VRM Server consumes one iSCSI session and delivers up to 32 simultaneous camera replay sessions.

In addition, the playback client supports synchronized replay of up to four camera streams.

The playback client also provides fast and flexible image retrieval based on block-based motion detection, metadata search, and forensic Video Content Analysis (VCA).

Note Video export and VCA Forensic Search require a separate license.



Playback Client

Installation/Configuration Notes

VRM Components

The Video Recording Manager consists of the following three server and client components which may be installed on separate systems.

- VRM Server (central Recording Management Service) with Web interface for VRM Monitor
- VRM Configurator
- Archive Player (playback client)

VRM Monitor

- Displays overall system status information, including uptime, bit rate, and retention times.
- Provides status information on recordings and storage.

- Displays live view and recording previews for a single camera.

VRM Configurator

- Allows configuration of the iSCSI storage subsystems.
 - Bosch DVA Series (Bosch OEM Disk Arrays)
 - Bosch DSA Series (NetApp Storage Systems)
- Allows configuration of recording parameters, including schedules, data rates, frame rates, streams, and privileges.
- Allows management of users and groups with privileges and roles.
- Allows configuration of load balancing parameters (bandwidth and iSCSI connections) per disk array (IP address).

Archive Player

- Provides replay and search functionality.
- Support for Contour Design ShuttlePRO V.2.

Technical Specifications

Supported languages

- English, German, Dutch, French, Italian, Portuguese, Polish, Russian, Spanish and Simplified Chinese

VRM Server (running as a service)

- Windows 2003 Server R2, Standard Edition

Recommended Bosch Server Hardware

- <100 cameras: MHW-SE1M1
- <350 cameras: MHW-SM4M1
- >350 cameras: MHW-SM5M2

Browser

- Replay only with Microsoft Internet Explorer, v6.0 or 7.0
- All other functions allowed with a wide range of browsers

Configuration and Playback

- Windows XP Professional SP2, SP3
- Windows XP Professional x64
- Windows Vista SP1, SP2

Note

Up to 2048 cameras are supported within a single VRM environment. When planning for larger environments it is strongly recommended to use large sized disk arrays instead of a large number of small disk arrays (vertical scaling instead of horizontal scaling). The number of disk arrays to be used within one VRM installation should not exceed 40. For systems with more than 40 disk arrays, please contact a Bosch Design Engineer.

Ordering Information

MVM-BVRM2-016

Bosch VRM 2.0 base package with a 16-camera license single-pack. VRM 2.0 licenses can be used for VRM 2.10.

MVM-BVRM2-016

MVM-SVRM2-BAK

Bosch VRM 2.0 Secondary Server single-pack. VRM 2.0 licenses can be used for VRM 2.10.

MVM-SVRM2-BAK

MVM-XVRM-016

16-camera upgrade license

MVM-XVRM-016

MVM-XVRM-032

32-camera upgrade license

MVM-XVRM-032

MVM-XVRM-064

64-camera upgrade license

MVM-XVRM-064

MVM-XVRM-128

128-camera upgrade license

MVM-XVRM-128

MVM-XVRM-256

256-camera upgrade license

MVM-XVRM-256

MVM-XVRM-512

512-camera upgrade license

MVM-XVRM-512

MVM-XVRM-1024

1024-camera upgrade license

MVM-XVRM-1024

MVM-XVRM-2048

2048-camera upgrade license

MVM-XVRM-2048

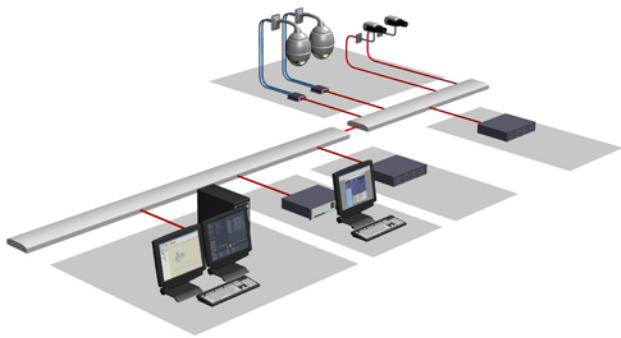
Software Options

MVC-FAPFS

Archive Player IVA Forensic Search license

MVC-FAPFS

MVM-BVRM Video Recording Manager v2.10



Features

- ▶ **Distributed storage and configurable load balancing**
- ▶ **iSCSI disk array failover for extra reliability**
- ▶ **Used with all Bosch Video-over-IP cameras and encoders**
- ▶ **Configuration support for all Bosch disk arrays (DVA and DSA series)**

Bosch Video Recording Manager (VRM) provides a Distributed Network Video Recorder solution, eliminating the need for dedicated NVRs and signaling the second generation of IP network video recording. VRM supports iSCSI-based storage systems and Bosch Video-over-IP devices (IP cameras and IP video encoders).

VRM introduces the concept of a storage virtualization layer. This abstraction layer enables VRM to manage all of the individual disk arrays in the entire system as a single “virtual” common pool of storage, which is intelligently allocated as needed.

VRM eliminates the need for Network Video Recorders (NVRs) and their associated server hardware, operating systems, and anti-virus software, as well as the ongoing software patches and updates these systems require.

This new technology makes installation, operation, and maintenance much easier while reducing the total cost of ownership.

System Overview

The Video Recording Manager is comprised of the

- Recording Management Service (VRM Server)
- configuration client (VRM Configurator)
- playback client (Archive Player)

The central Recording Management Service runs as a service on Microsoft Windows platforms. Bosch recommends running VRM Server on a dedicated server/hardware platform.

VRM offers system-wide recording, monitoring, and management of Bosch iSCSI storage, video encoders, and cameras.

VRM software supports Bosch H.264 and MPEG-4 IP video devices including all encoders, Dinion and FlexiDome IP cameras, as well as AutoDome and Extreme IP cameras. Supported storage subsystems include the Bosch iSCSI-based DVA and DSA Series disk array systems. The iSCSI disk arrays can be attached anywhere on a standard IP network.

VRM 2.10 offers additional redundancy and data availability by supporting Automatic Network Replenishment (ANR) with Bosch Video-over-IP devices (BVIP Firmware 4.0 or later required).

Optimal Performance

The Video Recording Manager offers a high-performance, flexible, scalable, and a highly reliable iSCSI storage management solution.

Optimized performance is obtained by the use of intelligent addressing on a block level, which also allows for load balancing of the video recording to all available storage blocks located on any storage array in the system.

Load balancing is provided with respect to the bandwidth and the number of iSCSI connections and is configurable per IP address (iSCSI target).

Logical Virtualization

The VRM virtualization layer allows the scalability of storage beyond the physical limits of a single storage subsystem. This logical abstraction layer means that each camera can use any storage space it actually needs, rather than an allocated, arbitrary, discrete chunk ahead of time. Adjust retention times of video data as required.

Fast Recording and Retrieval

VRM provides fast and flexible retrieval via a search database of recordings and metadata. Metadata is a form of data that describes other data such as events, ATM/POS information, and video content analysis data. The metadata is recorded with the video data and provides a fast and efficient way for the search engine, in the playback client, to quickly locate specified video clips. The database also keeps track of the location of recording blocks. If this database is lost, VRM can recreate the database by reading the stored metadata, thus providing a self-healing capability.

Distributed Storage

VRM not only provides for redundant management of metadata, it also introduces a significant enhancement of overall reliability and availability. By providing redundancy for storage provisioning and a failover design for the central recording management service, there is no single point of failure. In addition, unlike NVR systems, VRM scales without requiring additional PCs. This greatly reduces the risk of system failures.

Functions

VRM Server

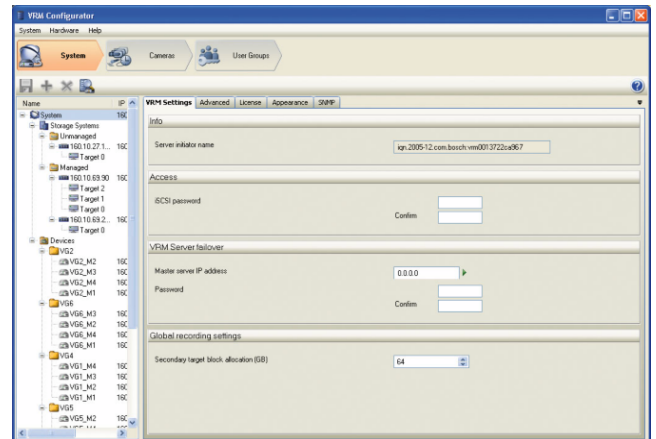
VRM Server, with the central Recording Management Service, maintains a database containing the recording source information and a list of associated iSCSI drives. The central monitoring includes a Web-based user interface for status monitoring. This provides system status overview, recording status information, as well as for live view and recording preview for single cameras.



VRM Server

Configuration Client

The configuration client allows for central configuration of the network storage subsystems, recordings (including schedules), data rate, frame rate, stream, and privileges, as well as for managing user accounts.



Configuration Client

Playback Client

The playback client takes advantage of Bosch's powerful and flexible VideoSDK. Advanced playback capabilities include trick replay with variable-speed forward/reverse play, video export to file, replay of video from file, as well as playback from Bosch video encoders and the VIDOS-NVR.

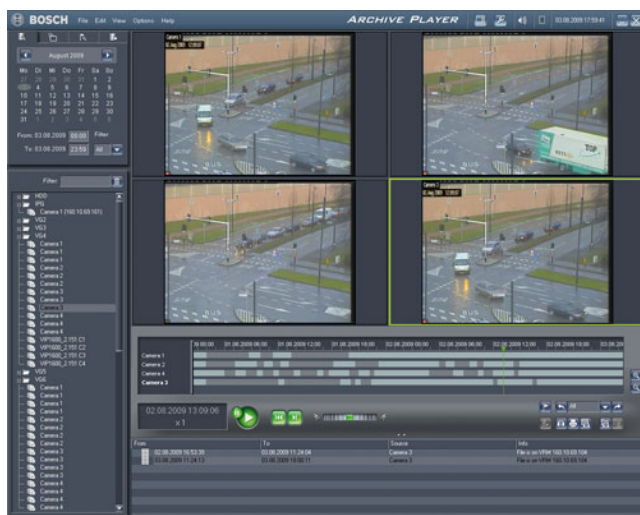
VRM 2.10 supports two alternative ways of replaying video data: either by directly connecting the playback client to the iSCSI disk arrays or through the VRM Server. When using the direct replay each playback client consumes one iSCSI session per iSCSI target and provides up to 32 simultaneous camera replay sessions.

When replay is done through the VRM, only the VRM consumes one iSCSI session per iSCSI target and delivers up to 32 simultaneous camera replay sessions. The camera replay sessions can be increased by the secondary VRM server. The playback client does not consume iSCSI sessions.

The playback client supports synchronized replay of up to four camera streams.

The playback client also provides fast and flexible image retrieval based on block-based motion detection, metadata search, and forensic Video Content Analysis (VCA).

Note Video export and VCA Forensic Search require a separate license.



Playback Client

Automatic Network Replenishment ANR

A VRM server can perform maximum 3 ANR jobs simultaneously. If you configure multiple ANR jobs for 1 device (for example with 4 channels), these jobs are performed one after the other. This avoids overload of the device. The number of ANR jobs cannot be increased by a secondary VRM server. The maximum performance is 24-times of replay, the actual performance may be limited by the capabilities of the encoder/camera.

ANR is only effective for data within the minimum retention time of the system. Recording gaps outside the minimum retention time will not be considered.

Backup of data through VRM

A VRM server can execute maximum 5 backup jobs in parallel. The number of backup jobs cannot be increased by a secondary VRM server. The maximum performance is 24-times of replay, this must be considered for bandwidth estimation of the iSCSI targets.

Licensing

Existing VRM 2.0 licenses can be used for VRM 2.10.

Installation/Configuration Notes

VRM Components

The Video Recording Manager consists of the following components which may be installed on separate systems.

- VRM Server (central Recording Management Service) with Web interface for VRM Monitor
- VRM Configurator
- Archive Player (playback client)

VRM Monitor

- Displays overall system status information, including uptime, bit rate, and retention times.
- Provides status information on recordings and storage.
- Displays live view and recording previews for a single camera.

VRM Configurator

- Allows configuration of the iSCSI storage subsystems.

- Bosch DVA Series (Bosch OEM Disk Arrays)
- Bosch DSA Series (NetApp Storage Systems)
- Allows configuration of recording parameters, including schedules, data rates, frame rates, streams, and privileges.
- Allows management of users and groups with privileges and roles.
- Allows configuration of load balancing parameters (bandwidth and iSCSI connections) per disk array (IP address).

Archive Player

- Provides replay and search functionality.
- Support for Contour Design ShuttlePRO V.2.

Technical Specifications

Bandwidth

- 1 Gbit network (recommended)

Supported languages

- Arabic, Czech, English, German, Danish, Dutch, Finnish, French, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Portuguese, Polish, Russian, Spanish, Simplified Chinese, Swedish, Thai, Traditional Chinese and Turkish

VRM Server (running as a service)

- Windows XP Professional SP3
- Windows 7 Professional and Windows 7 Ultimate N
- Windows 2003 Server R2, Standard Edition with SP2
- Windows 2003 Server R2, Standard Edition
- Windows 2008 Server R2, Standard Edition

Recommended Bosch Server Hardware

- <100 cameras: MHW-S360R6-LL
- <350 cameras: MHW-S380R6-EL
- >350 cameras: MHW-S380R6-MC

Browser

- Replay only with Microsoft Internet Explorer, v7.0 or 8.0
- All other functions allowed with a wide range of browsers

Configuration and Playback

VRM Configurator:

- Windows XP Professional SP3
- Windows 7 Professional and Windows 7 Ultimate N
- Windows 2003 Server R2, Standard Edition with SP2
- Windows 2008 Server R2, Standard Edition

Playback Client:

- Windows XP Professional SP3
- Windows XP Professional x64
- Windows Vista SP2

Note

Up to 2048 cameras are supported within a single VRM environment. When planning for larger environments it is strongly recommended to use large sized disk arrays instead of a large number of small disk arrays (vertical scaling instead of horizontal scaling). The number of disk arrays to be used within

one VRM installation should not exceed 40.
For systems with more than 40 disk arrays,
please contact a Bosch Design Engineer.

Ordering Information

MVM-BVRM2-016 **MVM-BVRM2-016**

Bosch VRM 2.0 base package with a 16-camera license single-pack. VRM 2.0 licenses can be used for VRM 2.10.

MVM-SVRM2-BAK **MVM-SVRM2-BAK**

Bosch VRM 2.0 Secondary Server single-pack. VRM 2.0 licenses can be used for VRM 2.10.

MVM-XVRM-016 **MVM-XVRM-016**

16-camera upgrade license

MVM-XVRM-032 **MVM-XVRM-032**

32-camera upgrade license

MVM-XVRM-064 **MVM-XVRM-064**

64-camera upgrade license

MVM-XVRM-128 **MVM-XVRM-128**

128-camera upgrade license

MVM-XVRM-256 **MVM-XVRM-256**

256-camera upgrade license

MVM-XVRM-512 **MVM-XVRM-512**

512-camera upgrade license

MVM-XVRM-1024 **MVM-XVRM-1024**

1024-camera upgrade license

MVM-XVRM-2048 **MVM-XVRM-2048**

2048-camera upgrade license

Accessories

MHW-S360R6-LL Management Server **MHW-S360R6-LL**

Entry-level server, standard performance (localization kit must be ordered separately)

MHW-S380R6-EL Management Server **MHW-S380R6-EL**

Mid-range server, advanced performance with internal hard disks (localization kit must be ordered separately)

MHW-S380R6-MC Management Server **MHW-S380R6-MC**

Upper-mid-range server, high performance (localization kit must be ordered separately)

MHW-AWLCK-DE Localization Kit **MHW-AWLCK-DE**

Localization (OS/keyboard): Germany—German

MHW-AWLCK-FR Localization Kit **MHW-AWLCK-FR**

Localization (OS/keyboard): France—French

MHW-AWLCK-IT Localization Kit **MHW-AWLCK-IT**

Localization (OS/keyboard): Italy—Italian

MHW-AWLCK-UK Localization Kit **MHW-AWLCK-UK**

Localization (OS/keyboard): United Kingdom—British English

Software Options

MVC-FAPFS **MVC-FAPFS**

Archive Player IVA Forensic Search license

MHW-WZ2R0-EL Management Workstation



Features

- ▶ **Entry-level workstation with next-generation Intel® Core™ i3 series processors**
- ▶ **Integrated Intel HD Graphics (dual-monitor support)**
- ▶ **Protected by HP Services, including a 3 years Next Business Day on-site support**

This HP Z200 management workstation offers an entry-point into the Bosch video-oriented applications that require entry-level performance and visualization by offering the advanced power and productivity of HP's latest workstation technology at a rivaling price point.

HP Z200 is engineered to optimize the way the processor, memory, graphics, operating systems, and software work together.

Though HP Z200 comes at an entry-level price point it offers reliable enterprise-class technology—including ECC memory that helps ensure data integrity and higher system uptime.

Get fast performance with built-in memory controller and the latest Intel® Core™ i3 dual-core processor:

- Intel® Core™ i3-530 Processor (2.93 GHz, 4 MB cache, 1333 MHz memory, Dual-Core, HT)
 - 4 GB (2 x 2 GB) DDR3-1333 ECC Unbuffered RAM
- Save energy with ENERGY STAR® 5.0 qualification, 89% efficient power supplies, and HP WattSaver technology, which, when activated, consumes less than 1 W in off mode.

HP Z200 is a workstation solution based on the Intel® PCH 3450 Chipset offering one additional PCIe x16 Gen2 slot as well as 1 PCIe x16 Gen1, 1 PCIe x1 Gen1, 1 PCIe x4 Gen1, and 3 PCI slots for future expandability.

The integrated Intel HD Graphics provides onboard graphics functionality without requiring an additional graphics card.

With a smart new chassis it is easy to access—both inside and out with a tool-free chassis and two convenient USB ports on the front. The convertible minitower chassis allows for Minitower or Desktop orientation.

System Overview

MHW-WZ2R0-EL Management Workstation is the entry-level workstation suitable for running the security systems software applications offered by Bosch.

Please refer to the respective application data sheets to get detailed information.

Dual-Core Intel® (Clarkdale) processor for HP Z200:

- Design and performance scalability with Intel® Hyper-Threading Technology (Intel® HT Technology), scalable cache sizes, system interconnects, and integrated memory controllers
- Intel® Hyper-Threading Technology brings high-performance applications into mainstream computing optimized for a new generation multi-core processor architecture

Integrated Intel® HD Graphics:

- Unified Memory Architecture (UMA)—a region of system memory is reserved and dedicated to the graphics display
- DirectX 10.0 compliant
- 2D/3D graphics core
- 1 Single-link DVI-I and 1 DP (Display Port) graphics ports integrated in motherboard—integrated graphics can do dual display across DP and DVI-I

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by weight)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Application package

MHW-WZ2R0-EL Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Language selection

MHW-WZ2R0-EL base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-WZ2R0-ELUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Parts Included

Quantity Components

1	HP Z200 Workstation
1	<ul style="list-style-type: none"> HP Z200 localization kit (select desired language)
1	<ul style="list-style-type: none"> HP Z200 320 W, 89% efficient chassis
1	<ul style="list-style-type: none"> HP 250 GB SATA 7200, 1st HDD
1	<ul style="list-style-type: none"> HP USB standard keyboard
1	<ul style="list-style-type: none"> HP USB optical scroll mouse
1	<ul style="list-style-type: none"> HP 16X DVD± RW SuperMulti SATA
1	<ul style="list-style-type: none"> Intel® Core™ i3-530 (2.93/4 MB/1333 DC CPU)
1	<ul style="list-style-type: none"> HP 4 GB (2 x 2 GB) DDR3-1333 ECC RAM
1	<ul style="list-style-type: none"> HP integrated graphics
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	320 W, wide ranging, Active Power Factor Correction, 89% efficient
Operating voltage range	90 to 264 VAC
Rated voltage range	No
Rated line frequency	No
Operating line frequency range	No
Rated input current	No
Power consumption in sleep mode (defined by ENERGY STAR®)—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	1419 BTU/h typical (358 kcal/h) 2027 BTU/h max (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
ENERGY STAR® qualified	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Convertible minitower
Chassis dimensions (H x W x D) Minitower or desktop orientation	44.76 x 17.78 x 45.43 cm (17.6 x 7 x 17.9 in)

Environmental

Temperature	
<ul style="list-style-type: none"> operating 	5 °C to 35 °C (40 °F to 95 °F)
<ul style="list-style-type: none"> non-operating 	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
<ul style="list-style-type: none"> operating 	8 to 85%
<ul style="list-style-type: none"> non-operating 	8 to 90%
Maximum altitude (non-pressurized)	
<ul style="list-style-type: none"> operating 	3,000 m (10,000 feet)
<ul style="list-style-type: none"> non-operating 	9,100 m (30,000 feet)

Notes:

- General technical specifications for the workstation are provided in the HP Z200 QuickSpecs (Worldwide—Version 3—March 24, 2010).
- Configuration specifications are supplied in the Parts Included section.

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Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

MHW-WZ2R0-EL Management Workstation	MHW-WZ2R0-EL
Entry-level workstation, onboard GC (localization kit must be ordered separately)	
Accessories	
MHW-AWLCK-CZ Localization Kit	MHW-AWLCK-CZ
Localization (OS/keyboard): Czech Republic—Czech	
MHW-AWLCK-DE Localization Kit	MHW-AWLCK-DE
Localization (OS/keyboard): Germany—German	
MHW-AWLCK-DK Localization Kit	MHW-AWLCK-DK
Localization (OS/keyboard): Denmark—English	
MHW-AWLCK-ESP Localization Kit	MHW-AWLCK-ESP
Localization (OS/keyboard): Spain—Spanish	
MHW-AWLCK-FR Localization Kit	MHW-AWLCK-FR
Localization (OS/keyboard): France—French	
MHW-AWLCK-IT Localization Kit	MHW-AWLCK-IT
Localization (OS/keyboard): Italy—Italian	
MHW-AWLCK-NL Localization Kit	MHW-AWLCK-NL
Localization (OS/keyboard): Netherlands—Dutch	

Ordering Information

MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

MHW-WZ2R0-NG Management Workstation



Features

- ▶ **High-end workstation with the latest Intel® Xeon® quad-core processors**
- ▶ **Choice of professional 2D or 3D graphics card**
- ▶ **Protected by HP Services, including a 3 years Next Business Day on-site support**

This HP Z200 management workstation with its new architecture delivers standard performance and visualization for the Bosch video-oriented applications by offering the advanced power and productivity of HP's latest workstation technology.

HP Z200 is engineered to optimize the way the processor, memory, graphics, operating systems, and software work together.

Get fast performance with built-in memory controller and the latest Intel® Xeon® quad-core processor:

- Intel® Xeon® Processor X3430 (2.40 GHz, 8 MB cache, 1333 MHz memory, Quad-Core, HT, Turbo)
 - 4 GB (2 x 2 GB) DDR3-1333 ECC Unbuffered RAM
- Save energy with ENERGY STAR® 5.0 qualification, 89% efficient power supplies, and HP WattSaver technology, which, when activated, consumes less than 1 W in off mode.

HP Z200 is a workstation solution based on the Intel® PCH 3450 Chipset offering one additional PCIe x16 Gen2 slot as well as 1 PCIe x16 Gen1, 1 PCIe x1 Gen1, 1 PCIe x4 Gen1, and 3 PCI slots for future expandability.

A graphics card is not included in MHW-WZ2R0-NG specification. You can choose the type of graphics card when ordering to drive up to four 2D or two 3D displays.

With a smart new chassis it is easy to access—both inside and out with a tool-free chassis and two convenient USB ports on the front. The convertible minitower chassis allows for Minitower or Desktop orientation.

System Overview

MHW-WZ2R0-NG Management Workstation is the high-end workstation suitable for running the security systems software applications offered by Bosch.

Please refer to the respective application data sheets to get detailed information.

Intel® Microarchitecture (Nehalem) offers the latest in processor innovation, including:

- Dynamic scalability, managed cores, threads, cache, interfaces, and power for energy-efficient performance on demand
- Design and performance scalability with Intel® Hyper-Threading Technology (Intel® HT Technology), scalable cache sizes, system interconnects, and integrated memory controllers
- Intel® Hyper-Threading Technology brings high-performance applications into mainstream computing optimized for a new generation multi-core processor architecture
- Intel® Turbo Boost Technology delivers additional performance automatically when needed by taking advantage of the processor's power and thermal headroom

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by weight)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Application package

MHW-WZ2R0-NG Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Language selection

MHW-WZ2R0-NG base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-WZ2R0-NGUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Graphics Card

A graphics card is not included in MHW-WZ2R0-NG / MHW-WZ2R0-NGUS specification. You can choose from a variety of graphics cards when ordering:

MHW-AWGC-FX380	No 2nd card supported
MHW-AWGC-FX580	No 2nd card supported
MHW-AWGC-ATIV37	No 2nd card supported
MHW-AWGC-FX1800	No 2nd card supported
MHW-AWGC-ATIV57	No 2nd card supported
MHW-AWGC-NVS295	2nd card supported

Parts Included

Quantity Components

1	HP Z200 Workstation
1	<ul style="list-style-type: none"> HP Z200 localization kit (select desired language)
1	<ul style="list-style-type: none"> HP Z200 320 W, 89% efficient chassis
1	<ul style="list-style-type: none"> HP 250 GB SATA 7200, 1st HDD
1	<ul style="list-style-type: none"> HP USB standard keyboard
1	<ul style="list-style-type: none"> HP USB optical scroll mouse
1	<ul style="list-style-type: none"> HP 16X DVD± RW SuperMulti SATA
1	<ul style="list-style-type: none"> Intel® Xeon® X3430 (2.40/8 MB/1333 QC CPU)
1	<ul style="list-style-type: none"> HP 4 GB (2 x 2 GB) DDR3-1333 ECC RAM
1	<ul style="list-style-type: none"> Selectable graphics card option
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	320 W, wide ranging, Active Power Factor Correction, 89% efficient
Operating voltage range	90 to 264 VAC
Rated voltage range	No
Rated line frequency	No
Operating line frequency range	No
Rated input current	No
Power consumption in sleep mode (defined by ENERGY STAR®)—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	1419 BTU/h typical (358 kcal/h) 2027 BTU/h max (511 kcal/h)

Electrical

Power supply fan	92 x 25 mm variable speed
ENERGY STAR® qualified	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Convertible minitower
Chassis dimensions (H x W x D) Minitower or desktop orientation	44.76 x 17.78 x 45.43 cm (17.6 x 7 x 17.9 in)

Environmental

Temperature	
<ul style="list-style-type: none"> operating 	5 °C to 35 °C (40 °F to 95 °F)
<ul style="list-style-type: none"> non-operating 	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
<ul style="list-style-type: none"> operating 	8 to 85%
<ul style="list-style-type: none"> non-operating 	8 to 90%
Maximum altitude (non-pressurized)	
<ul style="list-style-type: none"> operating 	3,000 m (10,000 feet)
<ul style="list-style-type: none"> non-operating 	9,100 m (30,000 feet)

Notes:

- General technical specifications for the workstation are provided in the HP Z200 QuickSpecs (Worldwide—Version 3—March 24, 2010).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-WZ2R0-NG Management Workstation High-end workstation (graphics card and localization kit must be ordered separately)	MHW-WZ2R0-NG
Accessories	
MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK

Ordering Information

MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US
MHW-AWGC-FX380 Entry 3D Graphics Card NVIDIA Quadro FX 380 PCIe (256 MB)	MHW-AWGC-FX380
MHW-AWGC-ATIV37 Entry 3D Graphics Card ATI FirePro V3700 PCIe (256 MB)	MHW-AWGC-ATIV37
MHW-AWGC-FX1800 Mid-range 3D Graphics Card NVIDIA Quadro FX 1800 PCIe (768 MB)	MHW-AWGC-FX1800
MHW-AWGC-ATIV57 Mid-range 3D Graphics Card ATI FirePro V5700 PCIe (512 MB)	MHW-AWGC-ATIV57
MHW-AWGC-NVS295 Professional 2D Graphics Card NVIDIA Quadro NVS 295 PCIe (256 MB)	MHW-AWGC-NVS295

MHW-WZ2R0-PE Management Workstation



Features

- ▶ **High-end workstation with the latest Intel® Xeon® quad-core processors**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 1800 PCIe, 768 MB graphics)**
- ▶ **Protected by HP Services, including a 3 years Next Business Day on-site support**

This HP Z200 management workstation with its new architecture delivers standard performance and visualization for the Bosch video-oriented applications by offering the advanced power and productivity of HP's latest workstation technology.

HP Z200 is engineered to optimize the way the processor, memory, graphics, operating systems, and software work together.

Get fast performance with built-in memory controller and the latest Intel® Xeon® quad-core processor:

- Intel® Xeon® Processor X3430 (2.40 GHz, 8 MB cache, 1333 MHz memory, Quad-Core, HT, Turbo)
- 4 GB (2 x 2 GB) DDR3-1333 ECC Unbuffered RAM

Save energy with ENERGY STAR® 5.0 qualification, 89% efficient power supplies, and HP WattSaver technology, which, when activated, consumes less than 1 W in off mode.

HP Z200 is a workstation solution based on the Intel® PCH 3450 Chipset offering one additional PCIe x16 Gen2 slot as well as 1 PCIe x16 Gen1, 1 PCIe x1 Gen1, 1 PCIe x4 Gen1, and 3 PCI slots for future expandability.

The mid-range NVIDIA Quadro FX 1800 PCIe (768 MB) 3D graphics card ensures high performance and resolution for fast presentation of displayed video data.

With a smart new chassis it is easy to access—both inside and out with a tool-free chassis and two convenient USB ports on the front. The convertible minitower chassis allows for Minitower or Desktop orientation.

System Overview

MHW-WZ2R0-PE Management Workstation is the high-end workstation suitable for running the security systems software applications offered by Bosch.

Please refer to the respective application data sheets to get detailed information.

Intel® Microarchitecture (Nehalem) offers the latest in processor innovation, including:

- Dynamic scalability, managed cores, threads, cache, interfaces, and power for energy-efficient performance on demand
- Design and performance scalability with Intel® Hyper-Threading Technology (Intel® HT Technology), scalable cache sizes, system interconnects, and integrated memory controllers
- Intel® Hyper-Threading Technology brings high-performance applications into mainstream computing optimized for a new generation multi-core processor architecture
- Intel® Turbo Boost Technology delivers additional performance automatically when needed by taking advantage of the processor's power and thermal headroom

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by weight)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Application package

MHW-WZ2R0-PE Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Language selection

MHW-WZ2R0-PE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-WZ2R0-PEUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Parts Included

Quantity Components

1	HP Z200 Workstation
1	<ul style="list-style-type: none"> HP Z200 localization kit (select desired language)
1	<ul style="list-style-type: none"> HP Z200 320 W, 89% efficient chassis
1	<ul style="list-style-type: none"> HP 250 GB SATA 7200, 1st HDD
1	<ul style="list-style-type: none"> HP USB standard keyboard
1	<ul style="list-style-type: none"> HP USB optical scroll mouse
1	<ul style="list-style-type: none"> HP 16X DVD± RW SuperMulti SATA
1	<ul style="list-style-type: none"> Intel® Xeon® X3430 (2.40/8 MB/1333 QC CPU)
1	<ul style="list-style-type: none"> HP 4 GB (2 x 2 GB) DDR3-1333 ECC RAM
1	<ul style="list-style-type: none"> NVIDIA Quadro FX 1800 PCIe 768 MB graphics card
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	320 W, wide ranging, Active Power Factor Correction, 89% efficient
Operating voltage range	90 to 264 VAC
Rated voltage range	No
Rated line frequency	No
Operating line frequency range	No
Rated input current	No
Power consumption in sleep mode (defined by ENERGY STAR®)—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	1419 BTU/h typical (358 kcal/h) 2027 BTU/h max (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
ENERGY STAR® qualified	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Convertible minitower
Chassis dimensions (H x W x D) Minitower or desktop orientation	44.76 x 17.78 x 45.43 cm (17.6 x 7 x 17.9 in)

Environmental

Temperature	
• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
• operating	8 to 85%
• non-operating	8 to 90%
Maximum altitude (non-pressurized)	
• operating	3,000 m (10,000 feet)
• non-operating	9,100 m (30,000 feet)

Notes:

- General technical specifications for the workstation are provided in the HP Z200 QuickSpecs (Worldwide—Version 3—March 24, 2010).
- Configuration specifications are supplied in the Parts Included section.

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Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

MHW-WZ2R0-PE Management Workstation High-end workstation (localization kit must be ordered separately)	MHW-WZ2R0-PE
Accessories	
MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL

Ordering Information

MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

MHW-WZ4R0-HE Management Workstation



Features

- ▶ **High-performance workstation with Intel's latest-generation microarchitecture**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 3800 PCIe, 1.0 GB graphics)**
- ▶ **Silent running with HP liquid cooling solution**
- ▶ **Protected by HP Services, including a 3 years Next Business Day on-site support**

This HP Z400 management workstation with its revolutionary new architecture and power is designed for video-oriented applications that require high performance and most advanced visualization.

With a smart new chassis that is easy to service, liquid cooling, and quiet operation this workstation is focusing on minimizing power and cooling costs with ENERGY STAR® qualified configurations featuring 85% efficient power supplies and HP WattSaver while taking on bigger computing challenges with the new Intel® QuickPath technology and the latest Intel® Xeon® quad-core processor:

- Intel® Xeon® W3520 (2.66 GHz, 8 MB cache, 1066 MHz memory, 4.8 GT/s QPI, Quad-Core, HT, Turbo)
 - 3 GB (3 x 1 GB) DDR3-1333 ECC unbuffered RAM
- HP Z400 is a workstation solution based on the Intel® X58 Express Chipset using Intel's QPI (Quick Path Interconnect) technology between the CPU and the X58 chipset with a speed of up to 4.8 GT/s (Giga Transfers per second).

With dual PCIe x16 Gen2 graphics interfaces and additional 1 PCIe x4 Gen2 and 1 PCIe x4 Gen1 slots, the HP Z400 delivers high performance bandwidth interfaces and future expandability:

- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.
- The high-end NVIDIA Quadro FX 3800 PCIe (1.0 GB) 3D graphics card ensures highest performance and resolution for fast presentation of displayed video data.

The convertible minitower chassis allows for Minitower or Desktop orientation.

System Overview

MHW-WZ4R0-HE Management Workstation is the high-performance workstation suitable for running the security systems software applications offered by Bosch.

Please refer to the respective application data sheets to get detailed information.

Intel® Microarchitecture (Nehalem) offers the latest in processor innovation, including:

- Dynamic scalability, managed cores, threads, cache, interfaces, and power for energy-efficient performance on demand.
- Design and performance scalability with Intel® Hyper-Threading Technology (Intel® HT Technology), scalable cache sizes, system interconnects, and integrated memory controllers.
- Intel® Turbo Boost Technology delivers additional performance automatically when needed by taking advantage of the processor's power and thermal headroom.
- Intel® Hyper-Threading Technology brings high-performance applications into mainstream computing with 1-16+ threads optimized for a new generation multi-core processor architecture.
- Scalable shared memory of Intel® Quick Path technology features memory distributed to each processor with integrated memory controllers and high-speed point-to-point interconnects to unleash the performance of future versions of next generation Intel® multi-core processors.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by weight)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Application package

MHW-WZ4R0-HE Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Language selection

MHW-WZ4R0-HE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-WZ4R0-HEUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Parts Included

Quantity Components

1	HP Z400 6-DIMM Workstation
1	• HP Z400 localization kit (select desired language)
1	• HP Z400 475 W, 85% efficient chassis
1	• HP 250 GB SATA 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 16X DVD± RW SuperMulti SATA
1	• Intel® Xeon® W3520 (2.66/8 MB/1066 QC CPU)
1	• HP 3 GB (3 x 1 GB) DDR3-1333 ECC RAM
1	• NVIDIA Quadro FX 3800 PCIe 1.0 GB graphics card
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W, wide ranging, Active Power Factor Correction, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 HZ (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 HZ (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in sleep mode (defined by ENERGY STAR®)—suspend to RAM (S3) (instantly available PC)	<6 W
Heat dissipation (configuration and software dependent)	1419 BTU/h typical (358 kcal/h)
	2027 BTU/h max (511 kcal/h)

Electrical

Power supply fan	92 x 25 mm variable speed
ENERGY STAR® qualified	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Convertible minitower
Chassis dimensions (H x W x D) Minitower or desktop orientation	45.53 x 45.02 x 16.79 cm (17.9 x 17.7 x 6.6 in)

Environmental

Temperature	
• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
• operating	8 to 85%
• non-operating	8 to 90%
Maximum altitude (non-pressurized)	
• operating	3,000 m (10,000 feet)
• non-operating	9,100 m (30,000 feet)

Notes:

- General technical specifications for the workstation are provided in the HP Z400 QuickSpecs (Worldwide—Version 19—March 24, 2010).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-WZ4R0-HE Management Workstation High-performance workstation (localization kit must be ordered separately)	MHW-WZ4R0-HE
Accessories	
MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP

Ordering Information

MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

MHW-WZ4R0-NG Management Workstation



Features

- ▶ **High-performance workstation with Intel's latest-generation microarchitecture**
- ▶ **Choice of professional 2D or 3D graphics card**
- ▶ **Silent running with HP liquid cooling solution**
- ▶ **Protected by HP Services, including a 3 years Next Business Day on-site support**

This HP Z400 management workstation with its revolutionary new architecture and power is designed for video-oriented applications that require high performance and most advanced visualization.

With a smart new chassis that is easy to service, liquid cooling, and quiet operation this workstation is focusing on minimizing power and cooling costs with ENERGY STAR® qualified configurations featuring 85% efficient power supplies and HP WattSaver while taking on bigger computing challenges with the new Intel® QuickPath technology and the latest Intel® Xeon® quad-core processor:

- Intel® Xeon® W3520 (2.66 GHz, 8 MB cache, 1066 MHz memory, 4.8 GT/s QPI, Quad-Core, HT, Turbo)
 - 3 GB (3 x 1 GB) DDR3-1333 ECC unbuffered RAM
- HP Z400 is a workstation solution based on the Intel® X58 Express Chipset using Intel's QPI (Quick Path Interconnect) technology between the CPU and the X58 chipset with a speed of up to 4.8 GT/s (Giga Transfers per second).

With dual PCIe x16 Gen2 graphics interfaces and additional 1 PCIe x4 Gen2 and 1 PCIe x4 Gen1 slots, the HP Z400 delivers high performance bandwidth interfaces and future expandability:

- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.
- A graphics card is not included in the MHW-WZ4R0-NG specification. You can choose the type of graphics card when ordering to drive up to four 2D or four 3D (entry 3D or mid-range cards) displays.

The convertible minitower chassis allows for Minitower or Desktop orientation.

System Overview

MHW-WZ4R0-NG Management Workstation is the high-performance workstation suitable for running the security systems software applications offered by Bosch.

Please refer to the respective application data sheets to get detailed information.

Intel® Microarchitecture (Nehalem) offers the latest in processor innovation, including:

- Dynamic scalability, managed cores, threads, cache, interfaces, and power for energy-efficient performance on demand.
- Design and performance scalability with Intel® Hyper-Threading Technology (Intel® HT Technology), scalable cache sizes, system interconnects, and integrated memory controllers.
- Intel® Turbo Boost Technology delivers additional performance automatically when needed by taking advantage of the processor's power and thermal headroom.
- Intel® Hyper-Threading Technology brings high-performance applications into mainstream computing with 1-16+ threads optimized for a new generation multi-core processor architecture.
- Scalable shared memory of Intel® Quick Path technology features memory distributed to each processor with integrated memory controllers and high-speed point-to-point interconnects to unleash the performance of future versions of next generation Intel® multi-core processors.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive-2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive-2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by weight)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Application package

MHW-WZ4R0-NG Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Language selection

MHW-WZ4R0-HE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-WZ4R0-NGUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Graphics Card

A graphics card is not included in MHW-WZ4R0-NG / MHW-WZ4R0-NGUS specification. You can choose from a variety of graphics cards when ordering:

MHW-AWGC-FX580	1 or 2 of these cards are supported—2nd card must match 1st
MHW-AWGC-ATIV37	1 or 2 of these cards are supported—2nd card must match 1st
MHW-AWGC-FX1800	1 or 2 of these cards are supported—2nd card must match 1st
MHW-AWGC-ATIV57	1 or 2 of these cards are supported—2nd card must match 1st
MHW-AWGC-FX3800	No 2nd card supported
MHW-AWGC-FX4800	No 2nd card supported
MHW-AWGC-ATIV75	No 2nd card supported
MHW-AWGC-NVS295	1 or 2 of these cards are supported—2nd card must match 1st
MHW-AWGC-NVS450	

Parts Included

Quantity	Components
1	HP Z400 6-DIMM Workstation
1	• HP Z400 localization kit (select desired language)
1	• HP Z400 475 W, 85% efficient chassis
1	• HP 250 GB SATA 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 16X DVD± RW SuperMulti SATA
1	• Intel® Xeon® W3520 (2.66/8 MB/1066 QC CPU)
1	• HP 3 GB (3 x 1 GB) DDR3-1333 ECC RAM
1	• Selectable graphics card option
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W, wide ranging, Active Power Factor Correction, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 HZ (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 HZ (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in sleep mode (defined by ENERGY STAR®)—suspend to RAM (S3) (instantly available PC)	<6 W
Heat dissipation (configuration and software dependent)	1419 BTU/h typical (358 kcal/h)
	2027 BTU/h max (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
ENERGY STAR® qualified	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Convertible minitower
Chassis dimensions (H x W x D) Minitower or desktop orientation	45.53 x 45.02 x 16.79 cm (17.9 x 17.7 x 6.6 in)

Environmental

Temperature	
• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-opering	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
• operating	8 to 85%
• non-opering	8 to 90%
Maximum altitude (non-pressurized)	
• operating	3,000 m (10,000 feet)
• non-opering	9,100 m (30,000 feet)

Notes:

- General technical specifications for the workstation are provided in the HP Z400 QuickSpecs (Worldwide—Version 19—March 24, 2010).
- Configuration specifications are supplied in the Parts Included section.

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NVIDIA Quadro is a registered trademark of NVIDIA, all rights reserved.

Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

MHW-WZ4R0-NG Management Workstation

High-performance workstation (graphics card and localization kit must be ordered separately)

MHW-WZ4R0-NG

Accessories

MHW-AWLCK-CZ Localization Kit

Localization (OS/keyboard): Czech Republic—Czech

MHW-AWLCK-CZ

MHW-AWLCK-DE Localization Kit

Localization (OS/keyboard): Germany—German

MHW-AWLCK-DE

MHW-AWLCK-DK Localization Kit

Localization (OS/keyboard): Denmark—English

MHW-AWLCK-DK

MHW-AWLCK-ESP Localization Kit

Localization (OS/keyboard): Spain—Spanish

MHW-AWLCK-ESP

MHW-AWLCK-FR Localization Kit

Localization (OS/keyboard): France—French

MHW-AWLCK-FR

MHW-AWLCK-IT Localization Kit

Localization (OS/keyboard): Italy—Italian

MHW-AWLCK-IT

MHW-AWLCK-NL Localization Kit

Localization (OS/keyboard): Netherlands—Dutch

MHW-AWLCK-NL

MHW-AWLCK-NO Localization Kit

Localization (OS/keyboard): Norway—Norwegian

MHW-AWLCK-NO

MHW-AWLCK-RU Localization Kit

Localization (OS/keyboard): Russia—Russian

MHW-AWLCK-RU

MHW-AWLCK-SE Localization Kit

Localization (OS/keyboard): Sweden—Swedish

MHW-AWLCK-SE

MHW-AWLCK-SUI Localization Kit

Localization (OS/keyboard): Switzerland—French/German

MHW-AWLCK-SUI

MHW-AWLCK-UK Localization Kit

Localization (OS/keyboard): United Kingdom—British English

MHW-AWLCK-UK

MHW-AWLCK-US Localization Kit

Localization (OS/keyboard): USA—American English

MHW-AWLCK-US

MHW-AWGC-ATIV37 Entry 3D Graphics Card

ATI FirePro V3700 PCIe (256 MB)

MHW-AWGC-ATIV37

MHW-AWGC-FX1800 Mid-range 3D Graphics Card

NVIDIA Quadro FX 1800 PCIe (768 MB)

MHW-AWGC-FX1800

MHW-AWGC-ATIV57 Mid-range 3D Graphics Card

ATI FirePro V5700 PCIe (512 MB)

MHW-AWGC-ATIV57

Ordering Information

MHW-AWGC-FX3800 High-end 3D Graphics Card

NVIDIA Quadro FX 3800 PCIe (1 GB)

MHW-AWGC-FX3800

MHW-AWGC-FX4800 High-end 3D Graphics Card

Graphics Card offers one DVI and one Display port. 1 x DVI > VGA Adapter and 1 x Display > DVI Adapter are part of shipment.

MHW-AWGC-FX4800

MHW-AWGC-ATIV75 High-end 3D Graphics Card

ATI FirePro V7750 PCIe (1.0 GB)

MHW-AWGC-ATIV75

MHW-AWGC-NVS295 Professional 2D Graphics Card

NVIDIA Quadro NVS 295 PCIe (256 MB)

MHW-AWGC-NVS295

MHW-AWGC-NVS450 Multi-display 2D Graphics Card

Graphics Card offers 4 x Display ports. 4 x Display > DVI Adapters are part of shipment.

Note: Do not use Multiview mode as selectable in: Display Properties > Settings > Display

MHW-AWGC-NVS450

MHW-WZ4R0-EE Management Workstation



Features

- ▶ **Highest-performance workstation with Intel's latest-generation microarchitecture**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 4800 PCIe, 1.5 GB graphics)**
- ▶ **Silent running with HP liquid cooling solution**
- ▶ **Protected by HP Services, including a 3 years Next Business Day on-site support**

This HP Z400 management workstation with its revolutionary new architecture and power is designed for video-oriented applications that require highest performance and most advanced visualization.

With a smart new chassis that is easy to service, liquid cooling, and quiet operation this workstation is focusing on minimizing power and cooling costs with ENERGY STAR® qualified configurations featuring 85% efficient power supplies and HP WattSaver while taking on bigger computing challenges with the new Intel® QuickPath technology and the latest Intel® Xeon® quad-core processor:

- Intel® Xeon® W3550 (3.06 GHz, 8 MB cache, 1066 MHz memory, 4.8 GT/s QPI, Quad-Core, HT, Turbo)
 - 6 GB (3 x 2 GB) DDR3-1333 ECC unbuffered RAM
- HP Z400 is a workstation solution based on the Intel® X58 Express Chipset using Intel's QPI (Quick Path Interconnect) technology between the CPU and the X58 chipset with a speed of up to 4.8 GT/s (Giga Transfers per second).

With dual PCIe x16 Gen2 graphics interfaces and additional 1 PCIe x4 Gen2 and 1 PCIe x4 Gen1 slots, the HP Z400 delivers high performance bandwidth interfaces and future expandability:

- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.
- The ultra-high-end NVIDIA Quadro FX 4800 PCIe (1.5 GB) 3D graphics card ensures highest performance and resolution for fast presentation of displayed video data.

The convertible minitower chassis allows for Minitower or Desktop orientation.

System Overview

MHW-WZ4R0-EE Management Workstation is the highest-performance workstation suitable for running the security systems software applications offered by Bosch.

Please refer to the respective application data sheets to get detailed information.

Intel® Microarchitecture (Nehalem) offers the latest in processor innovation, including:

- Dynamic scalability, managed cores, threads, cache, interfaces, and power for energy-efficient performance on demand.
- Design and performance scalability with Intel® Hyper-Threading Technology (Intel® HT Technology), scalable cache sizes, system interconnects, and integrated memory controllers.
- Intel® Turbo Boost Technology delivers additional performance automatically when needed by taking advantage of the processor's power and thermal headroom.
- Intel® Hyper-Threading Technology brings high-performance applications into mainstream computing with 1-16+ threads optimized for a new generation multi-core processor architecture.
- Scalable shared memory of Intel® Quick Path technology features memory distributed to each processor with integrated memory controllers and high-speed point-to-point interconnects to unleash the performance of future versions of next generation Intel® multi-core processors.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by weight)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Application package

MHW-WZ4R0-EE Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Language selection

MHW-WZ4R0-EE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-WZ4R0-EEUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Parts Included

Quantity Components

1	HP Z400 6-DIMM Workstation
1	• HP Z400 localization kit (select desired language)
1	• HP Z400 475 W, 85% efficient chassis
1	• HP 250 GB SATA 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 16X DVD± RW SuperMulti SATA
1	• Intel® Xeon® W3550 (3.06/8 MB/1066 QC CPU)
1	• HP 6 GB (3 x 2 GB) DDR3-1333 ECC RAM
1	• NVIDIA Quadro FX 4800 PCIe 1.5 GB graphics card
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W, wide ranging, Active Power Factor Correction, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 HZ (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 HZ (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in sleep mode (defined by ENERGY STAR®)—suspend to RAM (S3) (instantly available PC)	<6 W
Heat dissipation (configuration and software dependent)	1419 BTU/h typical (358 kcal/h)
	2027 BTU/h max (511 kcal/h)

Electrical

Power supply fan	92 x 25 mm variable speed
ENERGY STAR® qualified	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Convertible minitower
Chassis dimensions (H x W x D) Minitower or desktop orientation	45.53 x 45.02 x 16.79 cm (17.9 x 17.7 x 6.6 in)

Environmental

Temperature	
• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
• operating	8 to 85%
• non-operating	8 to 90%
Maximum altitude (non-pressurized)	
• operating	3,000 m (10,000 feet)
• non-operating	9,100 m (30,000 feet)

Notes:

- General technical specifications for the workstation are provided in the HP Z400 QuickSpecs (Worldwide—Version 19—March 24, 2010).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-WZ4R0-EE Management Workstation	MHW-WZ4R0-EE
Highest-performance workstation (localization kit must be ordered separately)	
Accessories	
MHW-AWLCK-CZ Localization Kit	MHW-AWLCK-CZ
Localization (OS/keyboard): Czech Republic—Czech	
MHW-AWLCK-DE Localization Kit	MHW-AWLCK-DE
Localization (OS/keyboard): Germany—German	
MHW-AWLCK-DK Localization Kit	MHW-AWLCK-DK
Localization (OS/keyboard): Denmark—English	

Ordering Information

MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

MHW-S360R6-LL Management Server



Features

- ▶ **Standard performance with a single quad-core Intel Xeon 5504 processor (2.0 GHz)**
- ▶ **1333 MHz front-side bus support**
- ▶ **4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs (RDIMMs)**
- ▶ **1U rack for 19" rack deployment**
- ▶ **Protected by HP Services**

The MHW-S360R6-LL Management Server is designed for standard performance video applications and provides high reliability in a 1U form factor.

Designed to provide extreme adaptability, this HP ProLiant DL360 G6 Server allows you to benefit from scalable performance and enhanced power efficiency at reduced costs and with greater efficiency. Its dense form factor makes it ideal for space-constrained installations. The latest Intel Xeon 5500 Series processors, internal Serial Attached SCSI (SAS), and PCI Express Gen2 technology provide a high-performance system, ideal for the full range of scale out-applications such as demanding video applications.

With one state-of-the-art quad-core Intel Xeon Processor 5504 (2.0 GHz, 4 MB L3 cache, 80 W, 1333 FSB), and 4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs, it provides the performance, scalability, and support for memory-demanding applications in medium-sized environments. In addition, HP Services protects the server with a 3-year standard warranty (Next Business Day).

The server comes in a 1U, 19" rack mount version with a quick-deploy rail system, including sliding universal rails. The rack mount version allows access to all system components for easy in-rack serviceability.

To provide high capacity data storage, connect external SCSI storage arrays (like the Bosch DVA range of SCSI storage arrays) to the server via one PCI-e single-channel SCSI Host Bus Adapter.

Functions

The MHW-S360R6-LL Management Server provides the performance and memory needed for medium-sized recording applications without redundancy on disk level.

Certifications and Approvals

Region	Certification	
Europe	CE	MHW-S360R6

Installation/Configuration Notes

The MHW-S360R6-LL Management Server is ideal for medium-sized environments where no internal RAID protection for the operating system is needed and a dense form factor is required. Please refer to the respective application data sheets to get detailed information.

Note The MHW-S360R6-LL base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under **Ordering Information** must be selected when ordering. The MHW-S360R6-LLUS base unit comes with a US localization kit.

Parts Included

Quantity	Components
1	HP DL360 G6 CTO Chassis
1	<ul style="list-style-type: none"> • HP E5504 DL360 G6 Processor
2	<ul style="list-style-type: none"> • HP 2 GB 2Rx8 PC3-10600R-9 Memory
1	<ul style="list-style-type: none"> • HP DL360 G6 12.7 mm SATA DVD Optical
1	<ul style="list-style-type: none"> • HP 146 GB 3 G SAS 10 K 2.5 in DP ENT HDD
1	<ul style="list-style-type: none"> • HP SC11Xe Single Port PCI-e SCSI HBA
2	<ul style="list-style-type: none"> • HP 460 W HE 12 V Hotplug AC Power Supply
1	MS Windows 2003 Server R2, Std Edition OS
1	HP HW Support, 3-year standard warranty, Next Business Day

Technical Specifications

Electrical

Input requirements (per 460 W power supply)

• rated line voltage	100 to 240 VAC
• rated input current	4.5 A (at 100 VAC)
•	2.2 A (at 200 VAC)
• rated input frequency	50 to 60 Hz
• rated input power	526 W (at 100 VAC)
•	505 W (at 200 VAC)

Electrical

BTU rating	1773 BTU/h (at 100 VAC)
	1715 BTU/h (at 200 VAC)
Output power (per power supply)	
• rated steady-state power	460 W (at 100 VAC)
	460 W (at 200 VAC)
• maximum peak power	460 W (at 100 VAC)
	460 W (at 200 VAC)

Mechanical

Dimensions (H x W x D)	4.32 x 42.62 x 69.22 cm (1.70 x 16.78 x 27.25 in)
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Environmental

System inlet temperature	
• operating	10 °C to 35 °C (50 °F to 95 °F) at sea level with an altitude derating of 1.0 °C per every 305 m (1.8 °F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10 °C/h (18 °F/h). The upper limit may be limited by the type and number of options installed.
	System performance may be reduced if operating with a fan fault or above 30 °C (86 °F).
• non-operating	-40 °C to 70 °C (-40 °F to 158 °F). Maximum rate of change is 20 °C/h (36 °F/h).
Relative humidity	
• operating	10 to 90% relative humidity (Rh), 28 °C (82.4 °F) maximum wet bulb temperature, non-condensing
• non-operating	5 to 95% relative humidity (Rh), 38.7 °C (101.7 °F) maximum wet bulb temperature, non-condensing

Notes:

- General technical specifications for the server are provided in the HP DL360 G6 QuickSpecs (Worldwide – Version 11 – July 08, 2009).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-S360R6-LL Management Server	MHW-S360R6-LL
Entry-level server, standard performance (localization kit must be ordered separately)	

Accessories

MHW-AWLCK-DE Localization Kit	MHW-AWLCK-DE
Localization (OS/keyboard): Germany—German	
MHW-AWLCK-FR Localization Kit	MHW-AWLCK-FR
Localization (OS/keyboard): France—French	
MHW-AWLCK-IT Localization Kit	MHW-AWLCK-IT
Localization (OS/keyboard): Italy—Italian	
MHW-AWLCK-UK Localization Kit	MHW-AWLCK-UK
Localization (OS/keyboard): United Kingdom—British English	

MHW-S380R6-IDN Management Server



Features

- ▶ **Standard performance with a single quad-core Intel Xeon 5504 processor (2.0 GHz)**
- ▶ **1333 MHz front-side bus support**
- ▶ **4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs (RDIMMs)**
- ▶ **Four internal 146 GB SAS disks for video data**
- ▶ **2U rack for 19" rack deployment**
- ▶ **Protected by HP Services**

The HP ProLiant DL380 Generation 6 (G6) continues to deliver on its history of engineering excellence. Increased flexibility, enterprise-class uptime, advanced management features, proven two-socket Intel Xeon performance, and 2U density make it well-suited for demanding video applications.

The MHW-S380R6-IDN Management Server is designed for standard performance video applications that require high availability and redundancy. With its hot plug fans and power supplies, it delivers high system availability where the number of unplanned downtimes due to hardware failures is minimized.

With one state-of-the-art quad-core Intel Xeon Processor 5504 (2.0 GHz, 4 MB L3 cache, 80 W, 1333 FSB), and 4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs, it provides the performance and scalability for the requirements of a standard NVR environment. In addition, HP Services protects the server with a 3-year standard warranty (Next Business Day).

The server comes in a 2U, 19" rack mount version with a quick-deploy rail system, including sliding universal rails. The rack mount version allows access to all system components for easy in-rack serviceability.

The system provides one internal 146 GB (10 K, SAS 2.5 in) hot-pluggable hard drive for the operating system, as well as four additional internal 146 GB (10 K SAS 2.5 in) hard drives to store the video data. In addition, the video storage is RAID-0. Please note that RAID-0 is not hot-swappable. The MHW-S380R6-IDN is not equipped with a SCSI Host Bus Adapter; therefore, this server system cannot be attached to an external SCSI RAID.

Functions

The MHW-S380R6-IDN Management Server provides standard performance and memory capabilities as well as internal disk storage capacity.

Certifications and Approvals

Region	Certification	
Europe	CE	MHW-S380R6

Installation/Configuration Notes

The MHW-S380R6-IDN Management Server is ideal for the standard performance and memory requirements of applications that do not require large external storage capacities. Please refer to the respective application data sheets to get detailed information.

Note The MHW-S380R6-IDN base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under **Ordering Information** must be selected when ordering. The MHW-S380R6-IDNUS base unit comes with a US localization kit.

Parts Included

Quantity	Components
1	HP DL380 G6 CTO Chassis
1	<ul style="list-style-type: none"> • HP E5504 DL380 G6 Processor
2	<ul style="list-style-type: none"> • HP 2 GB 2Rx8 PC3-10600R-9 Memory
1	<ul style="list-style-type: none"> • HP Slim 12.7 mm SATA DVD Optical
5	<ul style="list-style-type: none"> • HP 146 GB 3 G SAS 10 K 2.5 in DP ENT HDD
1	<ul style="list-style-type: none"> • HP NC373T PCIe Mfn Gigabit Svr Adapter
2	<ul style="list-style-type: none"> • HP 460 W HE 12 V Hotplug AC Power Supply
1	MS Windows 2003 Server R2, Std Edition OS
1	HP HW Support, 3-year standard warranty, Next Business Day

Technical Specifications

Electrical

Input requirements (per 460 W power supply)

- rated line voltage 100 to 120 VAC, 200 to 240 VAC
- rated input current 5.5 A (at 100 VAC)
2.6 A (at 200 VAC)

- rated input frequency 50 to 60 Hz

- rated input power 526 W (at 100 VAC)
505 W (at 200 VAC)

BTU rating 1794 BTU/h (at 100 VAC)
1725 BTU/h (at 200 VAC)

Output power (per power supply)

- rated steady-state power 460 W (at 100 to 120 VAC)
460 W (at 200 to 240 VAC)
- maximum peak power 460 W (at 100 to 120 VAC)
460 W (at 200 to 240 VAC)

Mechanical

Dimensions (H x W x D) 8.59 x 44.54 x 69.22 cm
(3.38 x 17.54 x 27.25 in)

Environmental

System inlet temperature

- operating 10 °C to 35 °C (50 °F to 95 °F) at sea level with an altitude derating of 1.0 °C per every 305 m (1.8 °F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10 °C/h (18 °F/h). The upper limit may be limited by the type and number of options installed.
System performance may be reduced if operating with a fan fault or above 30 °C (86 °F).
- non-operating -30 °C to 60 °C (-22 °F to 140 °F). Maximum rate of change is 20 °C/h (36 °F/h).

Relative humidity

- operating 10 to 90% relative humidity (Rh), 28 °C (82.4 °F) maximum wet bulb temperature, non-condensing
- non-operating 5 to 95% relative humidity (Rh), 38.7 °C (101.7 °F) maximum wet bulb temperature, non-condensing

Notes:

- General technical specifications for the server are provided in the HP DL380 G6 QuickSpecs (Worldwide – Version 15 – August 14, 2009).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-S380R6-IDN Management Server
Mid-range server, standard performance (localization kit must be ordered separately)

MHW-S380R6-IDN

Accessories

MHW-AWLCK-DE Localization Kit
Localization (OS/keyboard): Germany—German

MHW-AWLCK-DE

MHW-AWLCK-FR Localization Kit
Localization (OS/keyboard): France—French

MHW-AWLCK-FR

MHW-AWLCK-IT Localization Kit
Localization (OS/keyboard): Italy—Italian

MHW-AWLCK-IT

MHW-AWLCK-UK Localization Kit
Localization (OS/keyboard): United Kingdom—British English

MHW-AWLCK-UK

MHW-S380R6-EL Management Server



Features

- ▶ **Advanced performance with a single quad-core Intel Xeon 5504 processor (2.0 GHz)**
- ▶ **1333 MHz front-side bus support**
- ▶ **4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs (RDIMMs)**
- ▶ **2U rack for 19" rack deployment**
- ▶ **Protected by HP Services**

The HP ProLiant DL380 Generation 6 (G6) continues to deliver on its history of engineering excellence. Increased flexibility, enterprise-class uptime, advanced management features, proven two-socket Intel Xeon performance, and 2U density make it well-suited for demanding video applications.

The MHW-S380R6-EL Management Server is designed for advanced performance video applications that require high availability and redundancy. With its hot plug fans and power supplies, it delivers high system availability where the number of unplanned downtimes due to hardware failures is minimized.

With one state-of-the-art quad-core Intel Xeon Processor 5504 (2.0 GHz, 4 MB L3 cache, 80 W, 1333 FSB), and 4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs, it provides the performance, scalability, and support for memory-demanding applications in medium-sized environments. In addition, HP Services protects the server with a 3-year standard warranty (Next Business Day).

The server comes in a 2U, 19" rack mount version with a quick-deploy rail system, including sliding universal rails. The rack mount version allows access to all system components for easy in-rack serviceability.

To provide high capacity data storage, connect external SCSI storage arrays (like the Bosch DVA range of SCSI storage arrays) to the server via two PCI-e single-channel SCSI Host Bus Adapters.

Functions

The MHW-S380R6-EL Management Server provides the advanced performance and memory needed for medium-sized recording applications without redundancy on disk level.

Certifications and Approvals

Region	Certification	
Europe	CE	MHW-S380R6

Installation/Configuration Notes

The MHW-S380R6-EL Management Server is ideal for medium-sized environments where no internal RAID protection for the operating system is needed. Please refer to the respective application data sheets to get detailed information.

Note The MHW-S380R6-EL base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under **Ordering Information** must be selected when ordering. The MHW-S380R6-ELUS base unit comes with a US localization kit.

Parts Included

Quantity	Components
1	HP DL380 G6 CTO Chassis
1	<ul style="list-style-type: none"> • HP E5504 DL380 G6 Processor
2	<ul style="list-style-type: none"> • HP 2 GB 2Rx8 PC3-10600R-9 Memory
1	<ul style="list-style-type: none"> • HP Slim 12.7 mm SATA DVD Optical
1	<ul style="list-style-type: none"> • HP 146 GB 3 G SAS 10 K 2.5 in DP ENT HDD
1	<ul style="list-style-type: none"> • HP NC373T PCIe Mfn Gigabit Svr Adapter
2	<ul style="list-style-type: none"> • HP SC11Xe Single Port PCI-e SCSI HBA
2	<ul style="list-style-type: none"> • HP 460 W HE 12 V Hotplug AC Power Supply
1	MS Windows 2003 Server R2, Std Edition OS
1	HP HW Support, 3-year standard warranty, Next Business Day

Technical Specifications

Electrical

Input requirements (per 460 W power supply)

- rated line voltage 100 to 120 VAC, 200 to 240 VAC
- rated input current 5.5 A (at 100 VAC)
2.6 A (at 200 VAC)

- rated input frequency 50 to 60 Hz

- rated input power 526 W (at 100 VAC)
505 W (at 200 VAC)

BTU rating 1794 BTU/h (at 100 VAC)
1725 BTU/h (at 200 VAC)

Output power (per power supply)

- rated steady-state power 460 W (at 100 to 120 VAC)
460 W (at 200 to 240 VAC)
- maximum peak power 460 W (at 100 to 120 VAC)
460 W (at 200 to 240 VAC)

Mechanical

Dimensions (H x W x D) 8.59 x 44.54 x 69.22 cm
(3.38 x 17.54 x 27.25 in)

Environmental

System inlet temperature

- operating 10 °C to 35 °C (50 °F to 95 °F) at sea level with an altitude derating of 1.0 °C per every 305 m (1.8 °F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10 °C/h (18 °F/h). The upper limit may be limited by the type and number of options installed.

System performance may be reduced if operating with a fan fault or above 30 °C (86 °F).
- non-operating -30 °C to 60 °C (-22 °F to 140 °F). Maximum rate of change is 20 °C/h (36 °F/h).

Relative humidity

- operating 10 to 90% relative humidity (Rh), 28 °C (82.4 °F) maximum wet bulb temperature, non-condensing
- non-operating 5 to 95% relative humidity (Rh), 38.7 °C (101.7 °F) maximum wet bulb temperature, non-condensing

Notes:

- General technical specifications for the server are provided in the HP DL380 G6 QuickSpecs (Worldwide – Version 15 – August 14, 2009).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-S380R6-EL Management Server
Mid-range server, advanced performance with internal hard disks (localization kit must be ordered separately)

MHW-S380R6-EL

Accessories

MHW-AWLCK-DE Localization Kit
Localization (OS/keyboard): Germany—German

MHW-AWLCK-DE

MHW-AWLCK-FR Localization Kit
Localization (OS/keyboard): France—French

MHW-AWLCK-FR

MHW-AWLCK-IT Localization Kit
Localization (OS/keyboard): Italy—Italian

MHW-AWLCK-IT

MHW-AWLCK-UK Localization Kit
Localization (OS/keyboard): United Kingdom—British English

MHW-AWLCK-UK

MHW-S380R6-MC Management Server



Features

- ▶ **High performance with a single quad-core Intel Xeon 5504 processor (2.0 GHz)**
- ▶ **1333 MHz front-side bus support**
- ▶ **4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs (RDIMMs)**
- ▶ **2U rack for 19" rack deployment**
- ▶ **Protected by HP Services**

The HP ProLiant DL380 Generation 6 (G6) continues to deliver on its history of engineering excellence. Increased flexibility, enterprise-class uptime, advanced management features, proven two-socket Intel Xeon performance, and 2U density make it well-suited for demanding video applications.

The MHW-S380R6-MC Management Server is designed for high-performance video applications that require high availability and redundancy. With its hot plug fans and power supplies, it delivers high system availability where the number of unplanned downtimes due to hardware failures is minimized, while its RAID controller provides internal RAID-1 operating system protection.

With one state-of-the-art quad-core Intel Xeon Processor 5504 (2.0 GHz, 4 MB L3 cache, 80 W, 1333 FSB), and 4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs, it provides the performance, scalability, and support for memory-demanding applications in medium-sized environments. In addition, HP Services protects the server with a 3-year standard warranty (Next Business Day).

The server comes in a 2U, 19" rack mount version with a quick-deploy rail system, including sliding universal rails. The rack mount version allows access to all system components for easy in-rack serviceability.

To provide high capacity data storage, connect external SCSI storage arrays (like the Bosch DVA range of SCSI storage arrays) to the server via one PCI-e single-channel SCSI Host Bus Adapter.

Functions

The MHW-S380R6-MC Management Server provides the performance and memory needed for medium-sized environments.

Certifications and Approvals

Region	Certification	
Europe	CE	MHW-S380R6

Installation/Configuration Notes

The MHW-S380R6-MC Management Server is ideal for performance- and memory-demanding medium-sized environments. Please refer to the respective application data sheets to get detailed information.

Note The MHW-S380R6-MC base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under **Ordering Information** must be selected when ordering. The MHW-S380R6-MCUS base unit comes with a US localization kit.

Parts Included

Quantity	Components
1	HP DL380 G6 CTO Chassis
1	• HP E5504 DL380 G6 Processor
2	• HP 2 GB 2Rx8 PC3-10600R-9 Memory
1	• HP Slim 12.7 mm SATA DVD Optical
2	• HP 146 GB 3 G SAS 10 K 2.5 in DP ENT HDD
1	• HP NC373T PCIe Mfn Gigabit Svr Adapter
1	• HP SC11Xe Single Port PCI-e SCSI HBA
2	• HP 460 W HE 12 V Hotplug AC Power Supply
1	• HP RAID-1
1	MS Windows 2003 Server R2, Std Edition OS
1	HP HW Support, 3-year standard warranty, Next Business Day

Technical Specifications

Electrical

Input requirements (per 460 W power supply)	
• rated line voltage	100 to 120 VAC, 200 to 240 VAC
• rated input current	5.5 A (at 100 VAC)
	2.6 A (at 200 VAC)
• rated input frequency	50 to 60 Hz
• rated input power	526 W (at 100 VAC)

Electrical

	505 W (at 200 VAC)
BTU rating	1794 BTU/h (at 100 VAC)
	1725 BTU/h (at 200 VAC)
Output power (per power supply)	
• rated steady-state power	460 W (at 100 to 120 VAC)
	460 W (at 200 to 240 VAC)
• maximum peak power	460 W (at 100 to 120 VAC)
	460 W (at 200 to 240 VAC)

Mechanical

Dimensions (H x W x D)	8.59 x 44.54 x 69.22 cm (3.38 x 17.54 x 27.25 in)
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Environmental

System inlet temperature	
• operating	10 °C to 35 °C (50 °F to 95 °F) at sea level with an altitude derating of 1.0 °C per every 305 m (1.8 °F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10 °C/h (18 °F/h). The upper limit may be limited by the type and number of options installed.
	System performance may be reduced if operating with a fan fault or above 30 °C (86 °F).
• non-operating	-30 °C to 60 °C (-22 °F to 140 °F). Maximum rate of change is 20 °C/h (36 °F/h).
Relative humidity	
• operating	10 to 90% relative humidity (Rh), 28 °C (82.4 °F) maximum wet bulb temperature, non-condensing
• non-operating	5 to 95% relative humidity (Rh), 38.7 °C (101.7 °F) maximum wet bulb temperature, non-condensing

Notes:

- General technical specifications for the server are provided in the HP DL380 G6 QuickSpecs (Worldwide – Version 15 – August 14, 2009).
- Configuration specifications are supplied in the Parts Included section.

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Ordering Information

MHW-S380R6-MC Management Server Upper-mid-range server, high performance (localization kit must be ordered separately)	MHW-S380R6-MC
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Accessories

MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK

MHW-W45M1-EL Management Workstation



Features

- ▶ **Entry-level workstation with latest dual-core technology**
- ▶ **1066 MHz processor front side bus support**
- ▶ **2 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 1700 512 MB PCIe Graphics)**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This HP xw4600 management workstation is designed for video-oriented applications on an entry-level for performance and visualization. The HP xw4600 is a workstation solution based on the new Intel X38 Express performance chipset and the latest workstation-class dual-core Intel processors:

- Intel's Core 2 Duo E7200 (2.53 GHz, 3 MB L2 cache)
- 2 GB DDR2 800 MHz ECC unbuffered

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 2 GB of memory for reliable application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.

- The mid-range NVIDIA Quadro FX 1700 PCIe (512 MB) 3D graphics card ensures resolution and presentation of displayed video data at a standard level.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-W45M1-EL Management Workstation is the entry-level workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive-2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive-2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

- Note** The MHW-W45M1-EL base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering. The MHW-W45M1-ELUS base unit comes with a US localization kit.
- The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document "Installation Note MUI on Bosch Platforms").

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	• HP xw4600 Localization Kit (select desired language)
1	• 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 1.44 MB floppy disk drive
1	• HP 16X DVD+/-RW SATA
1	• Intel Core 2 Duo E7200 2.53 3 MB/1066 CPU
1	• HP 2 GB (2x1 GB) DDR2-800 ECC RAM
1	• NVIDIA Quadro FX1700 512 MB PCIe Graphics
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature

• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)

Humidity

• operating	8 to 85%
• non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (North America — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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NVIDIA Quadro is a registered trademark of NVIDIA, all rights reserved.

Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE

Ordering Information

MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland— French/German	MHW-AWLCK-SUI
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MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom —British English	MHW-AWLCK-UK
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MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US
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MHW-W65M1-PE Management Workstation



Features

- ▶ **High-end workstation with latest dual-core technology**
- ▶ **1333 MHz processor front side bus support**
- ▶ **2 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 3700 512 MB PCIe Graphics)**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This HP xw4600 management workstation is designed for video-oriented applications that require standard performance and visualization. The HP xw4600 is a workstation solution based on the new Intel X38 Express performance chipset and the latest workstation-class dual-core Intel processors:

- Intel's Core 2 Duo E8400 (3 GHz, 6 MB L2 cache)
- 2 GB DDR2 800 MHz ECC unbuffered

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 2 GB of memory for reliable application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.
- The high-end NVIDIA Quadro FX 3700 PCIe (512 MB) 3D graphics card ensures high resolution and fast presentation of displayed video data.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-W65M1-PE Management Workstation is a high-end workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

- Note**
- The MHW-W65M1-PE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering. The MHW-W65M1-PEUS base unit comes with a US localization kit.
- The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document “Installation Note MUI on Bosch Platforms”).

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	• HP xw4600 Localization Kit (select desired language)
1	• 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 1.44 MB floppy disk drive
1	• HP 16X DVD+/-RW SATA
1	• Intel Core 2 Duo E8400 3.00 6 MB/1333 CPU
1	• HP 2 GB (2x1 GB) DDR2-800 ECC RAM
1	• NVIDIA Quadro FX3700 512 MB PCIe Graphics
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature

• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)

Humidity

• operating	8 to 85%
• non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (North America — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE

Ordering Information

MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland— French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom —British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

MHW-W65M1-NG Management Workstation



Features

- ▶ **High-end workstation with latest dual-core technology**
- ▶ **1333 MHz processor front side bus support**
- ▶ **2 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Choice of professional 2D or 3D graphics card**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This HP xw4600 workstation solution is designed for high-end applications based on the new Intel X38 Express performance chipset and the latest workstation-class dual-core Intel processors:

- Intel's Core 2 Duo E8400 (3 GHz, 6 MB L2 cache)
- 2 GB DDR2 800 MHz ECC unbuffered

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 2 GB of memory for reliable application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.

A graphic card is not included in the MHW-W65M1-NG specification. You can choose the type of graphic card and the quantity (one or two) when ordering to drive up to four 2D or four 3D displays.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-W65M1-NG Management Workstation is a high-end workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive-2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive-2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Language selection

MHW-W65M1-NG base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-W65M1-NGUS base unit comes with a US localization kit.

Note

The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document "Installation Note MUI on Bosch Platforms").

Graphics Card

A graphics card is not included in MHW-W65M1-NG / MHW-W65M1-NGUS specification. You can choose from a variety of graphics cards when ordering:

MHW-AWGC-FX580	1 or 2 of these cards are supported-2nd card must match 1st
MHW-AWGC-FX1800	1 or 2 of these cards are supported-2nd card must match 1st
MHW-AWGC-ATIV57	No 2nd card supported
MHW-AWGC-FX3800	No 2nd card supported
MHW-AWGC-ATIV77	No 2nd card supported
MHW-AWGC-FX4800	
MHW-AWGC-NVS450	

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	• HP xw4600 Localization Kit (select desired language)
1	• 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 1.44 MB floppy disk drive
1	• HP 16X DVD+/-RW SATA
1	• Intel Core 2 Duo E8400 3.00 6 MB/1333 CPU
1	• HP 2 GB (2x1 GB) DDR2-800 ECC RAM
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature	
• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
• operating	8 to 85%
• non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (World — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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NVIDIA Quadro is a registered trademark of NVIDIA, all rights reserved.

Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

Ordering Information**MHW-AWGC-FX1800 Mid-range 3D Graphics Card**

NVIDIA Quadro FX 1800 PCIe (768 MB)

MHW-AWGC-FX1800**MHW-AWGC-ATIV57 Mid-range 3D Graphics Card**

ATI FirePro V5700 PCIe (512 MB)

MHW-AWGC-ATIV57**MHW-AWGC-FX3800 High-end 3D Graphics Card**

NVIDIA Quadro FX 3800 PCIe (1 GB)

MHW-AWGC-FX3800**MHW-AWGC-FX4800 High-end 3D Graphics Card**

Graphics Card offers one DVI and one Display port. 1 x DVI > VGA Adapter and 1 x Display > DVI Adapter are part of shipment.

MHW-AWGC-FX4800**MHW-AWGC-ATIV77 High-end 3D Graphics Card**

ATI FireGL V7700 PCIe (512 MB)

MHW-AWGC-ATIV77**MHW-AWGC-NVS450 Multi-display 2D Graphics Card**

Graphics Card offers 4 x Display ports.
4 x Display > DVI Adapters are part of shipment.

Note: Do not use Multiview mode as selectable in: Display Properties > Settings > Display

MHW-AWGC-NVS450**MHW-AWM2E-DE 2 GB Memory Expansion**

2 GB memory expansion (German version)

MHW-AWM2E-DE

MHW-W67M2-HE Management Workstation



Features

- ▶ **High-performance workstation with latest dual-core technology**
- ▶ **1333 MHz processor front side bus support**
- ▶ **2 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 4800 1.5 GB PCIe Graphics)**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This HP xw4600 management workstation is designed for video-oriented applications that require high performance and advanced visualization. The HP xw4600 is a workstation solution based on the new Intel X38 Express performance chipset and the latest workstation-class dual-core Intel processors:

- Intel's Core 2 Duo E8500 (3.16 GHz, 6 MB L2 cache)
- 2 GB DDR2 800 MHz ECC unbuffered

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 2 GB of memory for reliable application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.

- The ultra-high-end NVIDIA Quadro FX 4800 PCIe (1.5 GB) 3D graphics card ensures high performance and resolution for fast presentation of displayed video data.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-W67M2-HE Management Workstation is a high-performance workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive-2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive-2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

- Note**
- The MHW-W67M2-HE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering. The MHW-W67M2-HEUS base unit comes with a US localization kit.
- The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document "Installation Note MUI on Bosch Platforms").

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	• HP xw4600 Localization Kit (select desired language)
1	• 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 1.44 MB floppy disk drive
1	• HP 16X DVD+/-RW SATA
1	• Intel Core 2 Duo E8500 3.16 6 MB/1333 CPU
1	• HP 2 GB (2x1 GB) DDR2-800 ECC Memory
1	• NVIDIA Quadro FX4800 1.5 GB PCIe Graphics
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature

• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)

Humidity

• operating	8 to 85%
• non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (World — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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NVIDIA Quadro is a registered trademark of NVIDIA, all rights reserved.

Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE

Ordering Information

MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland— French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom —British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US
MHW-AWM2E-DE 2 GB Memory Expansion 2 GB memory expansion (German version)	MHW-AWM2E-DE

MHW-W67M2-NG Management Workstation



Features

- ▶ **High-performance workstation with latest dual-core technology**
- ▶ **1333 MHz processor front side bus support**
- ▶ **2 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Choice of professional 2D or 3D graphics card**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This HP xw4600 workstation solution is designed for high-end applications based on the new Intel X38 Express performance chipset and the latest workstation-class dual-core Intel processors:

- Intel's Core 2 Duo E8500 (3.16 GHz, 6 MB L2 cache)
- 2 GB DDR2 800 MHz ECC unbuffered

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 2 GB of memory for reliable application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.

A graphic card is not included in the MHW-W67M2-NG specification. You can choose the type of graphic card and the quantity (one or two) when ordering to drive up to four 2D or four 3D displays.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-W67M2-NG Management Workstation is a high-performance workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive-2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive-2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

Language selection

MHW-W67M2-NG base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering.

MHW-W67M2-NGUS base unit comes with a US localization kit.

Note The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document "Installation Note MUI on Bosch Platforms").

Graphics Card

A graphics card is not included in MHW-W67M2-NG / MHW-W67M2-NGUS specification. You can choose from a variety of graphics cards when ordering:

MHW-AWGC-FX580	1 or 2 of these cards are supported-2nd card must match 1st
MHW-AWGC-FX1800	1 or 2 of these cards are supported-2nd card must match 1st
MHW-AWGC-ATIV57	No 2nd card supported
MHW-AWGC-FX3800	No 2nd card supported
MHW-AWGC-ATIV77	No 2nd card supported
MHW-AWGC-FX4800	
MHW-AWGC-NVS450	

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	• HP xw4600 Localization Kit (select desired language)
1	• 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 1.44 MB floppy disk drive
1	• HP 16X DVD+/-RW SATA
1	• Intel Core 2 Duo E8500 3.16 6 MB/1333 CPU
1	• HP 2 GB (2x1 GB) DDR2-800 ECC RAM
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature	
• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)
Humidity	
• operating	8 to 85%
• non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (World — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE
MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland—French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom—British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US

Ordering Information**MHW-AWGC-FX1800 Mid-range 3D Graphics Card**

NVIDIA Quadro FX 1800 PCIe (768 MB)

MHW-AWGC-FX1800**MHW-AWGC-ATIV57 Mid-range 3D Graphics Card**

ATI FirePro V5700 PCIe (512 MB)

MHW-AWGC-ATIV57**MHW-AWGC-FX3800 High-end 3D Graphics Card**

NVIDIA Quadro FX 3800 PCIe (1 GB)

MHW-AWGC-FX3800**MHW-AWGC-FX4800 High-end 3D Graphics Card**

Graphics Card offers one DVI and one Display port. 1 x DVI > VGA Adapter and 1 x Display > DVI Adapter are part of shipment.

MHW-AWGC-FX4800**MHW-AWGC-ATIV77 High-end 3D Graphics Card**

ATI FireGL V7700 PCIe (512 MB)

MHW-AWGC-ATIV77**MHW-AWGC-NVS450 Multi-display 2D Graphics Card**

Graphics Card offers 4 x Display ports.
4 x Display > DVI Adapters are part of shipment.

Note: Do not use Multiview mode as selectable in: Display Properties > Settings > Display

MHW-AWGC-NVS450**MHW-AWM2E-DE 2 GB Memory Expansion**

2 GB memory expansion (German version)

MHW-AWM2E-DE

MHW-W67M2D4-AE

Management Workstation



Features

- ▶ **All-in-one workstation with latest dual-core technology**
- ▶ **1333 MHz processor front side bus support**
- ▶ **2 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Four internal hard disk drives**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 4800 1.5 GB PCIe Graphics)**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This all-in-one HP xw4600 management workstation is designed for video-oriented applications that require high performance and advanced visualization. The HP xw4600 is a workstation solution based on the new Intel X38 Express performance chipset and the latest workstation-class dual-core Intel processors:

- Intel's Core 2 Duo E8500 (3.16 GHz, 6 MB L2 cache)
- 2 GB DDR2 800 MHz ECC unbuffered

With four internal hard disk drives (1 x 160 GB for the operating system, 3 x 1000 GB for video data) the system is designed as a stand-alone solution for recording and viewing video. This all-in-one system can be used for environments with a maximum bandwidth of 40 Mbps.

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 2 GB of memory for reliable application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.
- The ultra-high-end NVIDIA Quadro FX 4800 PCIe (1.5 GB) 3D graphics card ensures high performance and resolution for fast presentation of displayed video data.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-W67M2D4-AE Management Workstation is an all-in-one workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive-2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive-2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

- Note**
- The MHW-W67M2D4-AE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering. The MHW-W67M2D4-AEUS base unit comes with a US localization kit.
- The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document "Installation Note MUI on Bosch Platforms").

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	<ul style="list-style-type: none"> HP xw4600 Localization Kit (select desired language)
1	<ul style="list-style-type: none"> 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
3	<ul style="list-style-type: none"> HP 1000 GB SATA 3 GB/s NCQ 7200
1	<ul style="list-style-type: none"> HP USB standard keyboard
1	<ul style="list-style-type: none"> HP USB optical scroll mouse
1	<ul style="list-style-type: none"> HP 1.44 MB floppy disk drive
1	<ul style="list-style-type: none"> HP 16X DVD+/-RW SATA
1	<ul style="list-style-type: none"> Intel Core 2 Duo E8500 3.16 6 MB/1333 CPU
1	<ul style="list-style-type: none"> HP 2 GB (2x1 GB) DDR2-800 ECC Memory
1	<ul style="list-style-type: none"> NVIDIA Quadro FX4800 1.5 GB PCIe Graphics
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature

operating	5 °C to 35 °C (40 °F to 95 °F)
non-operating	-40 °C to 60 °C (-40 °F to 140 °F)

Humidity

operating	8 to 85%
non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (World — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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Intel is a registered trademark of Intel; Core is a trademark of Intel, all rights reserved.

NVIDIA Quadro is a registered trademark of NVIDIA, all rights reserved.

Energy Star is a registered trademark of U.S. Environmental Protection Agency, all rights reserved.

80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE

Ordering Information

MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland— French/German	MHW-AWLCK-SUI
MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom —British English	MHW-AWLCK-UK
MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US
MHW-AWM2E-DE 2 GB Memory Expansion 2 GB memory expansion (German version)	MHW-AWM2E-DE

MHW-WQ67M4-EE Management Workstation



Features

- ▶ **Highest-performance workstation with latest quad-core technology**
- ▶ **1333 MHz processor front side bus support**
- ▶ **4 GB DDR2 800 MHz ECC unbuffered memory**
- ▶ **Dual-monitor support (NVIDIA Quadro FX 4800 1.5 GB PCIe Graphics)**
- ▶ **Protected by HP Services, including a 3-year Next Business Day on-site support**

This HP xw4600 management workstation is designed for video-oriented applications that require highest performance and most advanced visualization. The HP xw4600 is a workstation solution based on the new Intel X38 Express performance chipset and the latest workstation-class quad-core Intel processors:

- Intel's Core 2 Quad Q9550 (2.83 GHz, 12 MB L2 cache)
- 4 GB DDR2 800 MHz ECC unbuffered

The HP xw4600 workstation allows for savings in power consumption and energy costs with an 80 PLUS efficient power supply and Energy Star compliant options without sacrificing performance.

With dual PCIe x16 Gen2 graphics interfaces, the HP xw4600 delivers up to twice the performance bandwidth of previous generation interfaces:

- It offers 4 GB of memory for advanced application performance, and its DDR2 800 MHz memory ensures high-quality data transmission and future expandability.
- The architecture of this management workstation delivers next generation I/O throughput to handle future high throughput and visualization requirements.

- The ultra-high-end NVIDIA Quadro FX 4800 PCIe (1.5 GB) 3D graphics card ensures highest performance and resolution for fast presentation of displayed video data.

The convertible minitower chassis allows the workstation to be set on the floor, at the side of a desk, or in a desktop configuration.

System Overview

The MHW-WQ67M4-EE Management Workstation is the highest-performance workstation suitable for running the security systems software applications offered by Bosch. Please refer to the respective application data sheets to get detailed information.

Certifications and Approvals

RoHS	Compliant with the Restrictions of Hazardous Substances (RoHS) directive–2002/95/EC
WEEE	Designed to comply with the Waste Electrical and Electronic Equipment (WEEE) Directive–2002/96/EC
ISO 11469 ISO 1043	Plastic parts used in the product weighing over 25 g are marked per ISO 11469 and ISO 1043
	Contains 0% recycled materials (by wt.)
	Product is >90% recyclable when properly disposed of at end-of-life

Installation/Configuration Notes

The MHW-WQ67M4-EE Management Workstation can have either the VIDOS or the Bosch VMS application package installed at one time.

Note

The MHW-WQ67M4-EE base unit does not come with a predefined language but offers a choice of language options. One of the localization kits listed under Ordering Information must be selected when ordering. The MHW-WQ67M4-EEUS base unit comes with a US localization kit.

The Bosch management workstation provides a MUI (Multilingual User Interface). With MUI installed the language of the workstation may be changed after initial installation (for details see document "Installation Note MUI on Bosch Platforms").

Parts Included

Quantity Components

1	HP xw4600 Workstation Base Unit
1	• HP xw4600 Localization Kit (select desired language)
1	• 160 GB SATA 3 GB/s NCQ 7200, 1st HDD
1	• HP USB standard keyboard
1	• HP USB optical scroll mouse
1	• HP 1.44 MB floppy disk drive
1	• HP 16X DVD+/-RW SATA
1	• Intel Core 2 Quad Q9550 2.83 12 MB/1333 CPU
1	• HP 4 GB (4x1 GB) DDR2-800 ECC RAM
1	• NVIDIA Quadro FX4800 1.5 GB PCIe Graphics
1	Microsoft Windows XP Pro 32-bit OS
1	HP 3-year Next Business Day on-site hardware support

Technical Specifications

Electrical

Power supply	475 W custom power supply, wide ranging, active PFC, 85% efficient
Operating voltage range	90 to 269 VAC
Rated voltage range	100 to 240 VAC
	118 VAC
Rated line frequency	50/60 Hz (at 100 to 240 VAC)
	400 Hz (at 118 VAC)
Operating line frequency range	47 to 66 Hz (at 100 to 240 VAC)
	393 to 407 Hz (at 118 VAC)
Rated input current	10 A at 100 to 127 VAC
	6 A at 200 to 240 VAC
	10 A at 118 VAC
Power consumption in ES mode—suspend to RAM (S3) (instantly available PC)	<5 W
Heat dissipation (configuration and software dependent)	Typical 1419 BTU/h (358 kcal/h)
	Maximum 2027 BTU/h (511 kcal/h)
Power supply fan	92 x 25 mm variable speed
Energy Star 4.0 compliant	Yes
80 PLUS compliant	Yes

Mechanical

Form factor	Minitower
Dimensions (H x W x D)	16.8 x 45.6 x 45.0 cm (6.6 x 17.9 x 17.7 in)

Environmental

Temperature

• operating	5 °C to 35 °C (40 °F to 95 °F)
• non-operating	-40 °C to 60 °C (-40 °F to 140 °F)

Humidity

• operating	8 to 85%
• non-operating	8 to 90%

Notes:

- General technical specifications for the workstation are provided in the HP xw4600 QuickSpecs (North America — Version 18 — August 1, 2008).
- Configuration specifications are supplied in the Parts Included section.

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80 PLUS is a registered trademark of Ecos, all rights reserved.

Ordering Information

Accessories

MHW-AWLCK-CZ Localization Kit Localization (OS/keyboard): Czech Republic—Czech	MHW-AWLCK-CZ
MHW-AWLCK-DE Localization Kit Localization (OS/keyboard): Germany—German	MHW-AWLCK-DE
MHW-AWLCK-DK Localization Kit Localization (OS/keyboard): Denmark—English	MHW-AWLCK-DK
MHW-AWLCK-ESP Localization Kit Localization (OS/keyboard): Spain—Spanish	MHW-AWLCK-ESP
MHW-AWLCK-FR Localization Kit Localization (OS/keyboard): France—French	MHW-AWLCK-FR
MHW-AWLCK-IT Localization Kit Localization (OS/keyboard): Italy—Italian	MHW-AWLCK-IT
MHW-AWLCK-NL Localization Kit Localization (OS/keyboard): Netherlands—Dutch	MHW-AWLCK-NL
MHW-AWLCK-NO Localization Kit Localization (OS/keyboard): Norway—Norwegian	MHW-AWLCK-NO
MHW-AWLCK-RU Localization Kit Localization (OS/keyboard): Russia—Russian	MHW-AWLCK-RU
MHW-AWLCK-SE Localization Kit Localization (OS/keyboard): Sweden—Swedish	MHW-AWLCK-SE

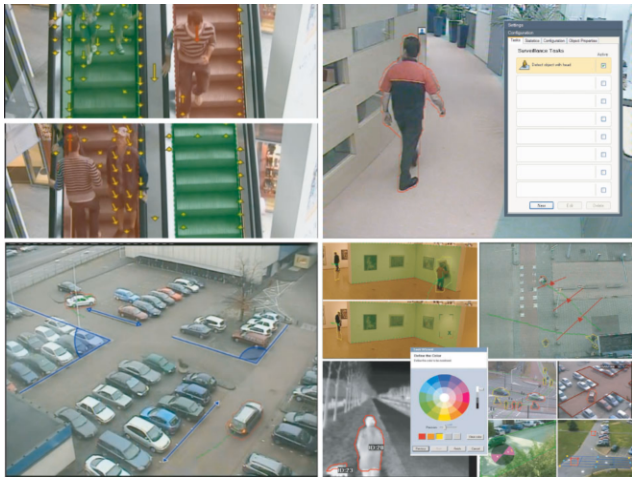
Ordering Information

MHW-AWLCK-SUI Localization Kit Localization (OS/keyboard): Switzerland— French/German	MHW-AWLCK-SUI
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MHW-AWLCK-UK Localization Kit Localization (OS/keyboard): United Kingdom —British English	MHW-AWLCK-UK
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MHW-AWLCK-US Localization Kit Localization (OS/keyboard): USA—American English	MHW-AWLCK-US
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IVA 4.0 Intelligent Video Analysis



Features

- ▶ **Embedded analytics eliminates dedicated PCs and associated software maintenance**
- ▶ **Detects idle/removed object, loitering, and line-crossing**
- ▶ **Displays/detects object trajectories, speed, direction, heads and color**
- ▶ **Optical flow detection of objects in a surveillance scene**
- ▶ **Creates metadata for forensic searching of recorded video**
- ▶ **Configuration wizard, pick object function and enhanced calibration for quick set-up**

The fourth generation of the Bosch Intelligent Video Analysis system, IVA 4.0, is the guard-assistant system of choice when you need reliable video motion detection for indoor or outdoor use. IVA 4.0 is state-of-the-art intelligent video analysis that reliably detects, tracks, and analyzes moving objects while suppressing unwanted alarms from spurious sources in the image.

IVA 4.0 is a licensed option already fully prepared in Dinion IP, Extreme IP, FlexiDome IP, and AutoDome IP cameras, as well as the VIP X1600 and VideoJet X families of encoders. The functionality built into IVA 4.0 cameras and encoders is able to detect idle and removed objects as well as loitering, multiple line crossing, and trajectories.

IVA 4.0 supports head detection as a new feature. And Bosch for the first time also supports optical flow detection of objects in a video surveillance scene. Configurable detection filters and advanced tracking improve reliability and reduce operator work load. IVA 4.0 comes with the new enhanced calibration tool to allow the calibration of the camera within a few minutes.

Functions

Robust Motion Detection

The improved algorithm in IVA 4.0 intelligently adapts to difficult conditions like changes in lighting or environment such as rain, snow, clouds, and leaves blowing in the wind. The background learning algorithm is continuously developed in-house by the Bosch research group and brings the latest level of intelligence to IVA.

The increased functionality combines with the built-in tamper detection that generates alarms on camera hooding/masking, blinding, defocusing, and repositioning. Image stabilization ensures detection even with shaky video sources such as cameras mounted on poles or simple vibrations.

The following tasks can be selected:

- Detect objects entering, leaving, or just being within an area (detector field)
- Detect loitering in an area related to radius and time
- Detect idle objects within a configurable time span
- Detect removed objects within a configurable time span
- Detect trajectories/routes of objects, passing in the scene, displayed with tracking lines
- Detect multiple line crossing from single line up to three lines combined in a logical row
- Detect condition change properties such as size, speed, direction, and aspect ratio change within a specified time span (for example something falling down)
- Detect heads within a configurable area
- Detect flow of a constant moving object
- Detect object that moves against a flow of objects
- Alarm task script manager in the expert mode to combine tasks logically

Filters

It is easy to configure IVA 4.0 to select sensitive areas of the image, minimum object size, and the motion direction that will trigger an alarm. IVA 4.0 will only detect the relevant moving objects in a scene. Use the object size, speed, two-way direction, aspect ratio, head detection and color filters to create specific detection rules. These filters can be used in any combination to exactly determine the object features you are looking for. Detection statistics for objects are stored for fine tuning the object filters.

Intelligence-at-the-Edge Concept

Embedded Video Content Analysis (VCA), that decides which video is captured, is an implementation of the Intelligence-at-the-Edge concept. By only selecting alarm video for streaming or recording, less bandwidth and storage is used.

Alarm conditions can be signaled by a relay output on the unit or an alarm connection, to stream video to a decoder or video management system. Alarms can also be transmitted to a video management system to start extended alarm scenarios.

As well as creating alarms, IVA 4.0 produces metadata that describes the content of the analyzed scene. This metadata is sent over the network—and may also be recorded—together with the video stream. It can be used for providing a forensic search capability for recordings together with the Archive Player program and a Forensic Search license. Forensic searching is very time efficient and can scan a huge recording database for events within seconds.

Intuitive Graphical User Interface

A new wizard-based GUI guides you through the configuration with ease. The Configuration Manager program with an intuitive plug-in is part of the product CD and provides all the necessary tools to set up IVA 4.0.

A wizard-based graphical display within the IVA Task Manager, allows you to set the sensitive area, size, speed, perspective, and aspect ratio as well as the movement direction and object color, which are then simply superimposed upon the image.

The pick object functionality enables configuration to be carried out just by clicking an object of interest in the live scene. All specific information regarding size, speed, direction, aspect ratio, and color are automatically set for task configuration.

Up to eight independent tasks can be selected and combined in the scene to build sophisticated detection rules, each one individualized with its own parameters. This allows the detection of multiple object states in parallel, generating separate triggers that can be handled independently or in combination. The interface allows a flexible selection of each sensitive area through polygons with up to 16 corner points.

A further improved calibrator is used for easy perspective correction and camera calibration making measurements more accurate for both metric and imperial systems.

When movement is detected, the object is outlined in yellow on the display and motion is tracked on the monitor. If an object and its motion match the rule conditions defined for one of the detector fields, it creates an alarm and its outlines are switched to red. Additionally, an idle object is marked with an **[I]** and a removed object with an **[X]**.

Installation/Configuration Notes

The IVA 4.0 software functionality is a free-of-charge upgrade of IVA 3.5 and already part of all IVA 4.0 enabled-products with the firmware release of 4.0 or higher. It upgrades automatically from an already installed IVMD 2.0, IVA 3.0 or IVA 3.5 when installing the 4.0 firmware to the device. New IVA 4.0 customers only need to enable the 4.0 license to make it operational.

The IVA 4.0 license enabling all IVA 4.x features, can be installed in parallel with an IVMD 1.0 license on the same unit (not on VIP X1600 XF). IVA 4.0 is set up using the Configuration Manager program that is included with the product and available for download from the Bosch website.

Configuration Manager can be installed as often as required on any PC that will be used for configuration of IVA 4.0 and the products themselves.

Video content analysis may require up to 40% of the available calculation power of an encoder or camera. As priority is always given to recording and live video streams, video content analysis may be affected if the calculation power it requires is not available. Correct selection of encoder settings should resolve this. The performance meter on the Web page of the product may be helpful for set-up. IVA 4.x is not available for VIP X1 and VIP X2 because of technical restrictions.

Ordering Information

MVC-FIVA4-CAM IVA 4.0 VCA software license for IP camera/ dome (e-license)	MVC-FIVA4-CAM
MVC-FIVA4-ENC1 IVA 4.0 VCA software license for single chan- nel encoder (e-license)	MVC-FIVA4-ENC1
MVC-FIVA4-ENC2 IVA 4.0 VCA software license for dual channel encoder (e-license)	MVC-FIVA4-ENC2
MVC-FIVA4-ENC4 IVA 4.0 VCA software license for quad chan- nel encoder (e-license)	MVC-FIVA4-ENC4

UML Series 8.4- and 10.4-inch General Purpose LCD Monitors



Features

- ▶ **High-resolution 8.4-in. and 10.4-in. LCD monitors**
- ▶ **Maximum brightness of 230 to 250 cd/m²**
- ▶ **Excellent color accuracy and consistency with 500:1 to 600:1 maximum contrast ratio.**
- ▶ **Auto-ranging internal power supply offering 100/240 VAC, 50/60 Hz**
- ▶ **Two (2) composite BNC inputs and loop-through outputs**
- ▶ **Y/C (S-video) and loop-through video and audio inputs**
- ▶ **VGA input for DVR or PC applications**
- ▶ **Trigger and auto switch features allow the monitors to change input sources**
- ▶ **Multi-language On-screen Display (OSD)**

Bosch LCD flat panel monitors are high-resolution color monitors ideal for use with analog video, digital video recorder (DVR), and with PC applications. The monitors feature a color liquid crystal display (LCD) flat-screen panel and are available with 8.4-in or 10.4-in. viewable picture areas. Each monitor features a wide range of horizontal and vertical viewing angles that provide comfortable, clear viewing – whether you place it on a desktop or mount it to a wall or in a rack.

Functions

Excellent image quality

Bosch LCD monitors automatically adapt to the input resolution of the incoming video signal. The monitors' analog VGA input easily accommodates the widespread use of PCs in today's security surveillance systems. Their high contrast ratio (500:1 to 600:1) and high brightness rating (230 to 250 cd/m²) offer excellent color accuracy and imaging for easier viewing and interpretation of images. The panel refreshes every 10 to 20 milliseconds, so you get crisp, clear images with less smearing - and less image "ghosting" in fast-motion video.

Key benefits of LCD monitors

Long-life fluorescent backlights help avoid luminance degradation on the LCD monitor – so it easily maintains its brightness level over time. This is an advantage over aging CRT-type monitors that become progressively dimmer. The consistent brightness also provides a sharp display image, without the constant flickering that you typically see in CRT monitors. This allows you to use the LCD monitor longer without eyestrain or excessive fatigue.

Additional advantages

The Bosch family of standard-performance LCD monitors also features:

- Low power consumption
- Automatic adaptation to fluctuating electricity loads while protecting your circuitry
- Standard 75 mm (2.95 in.) mounting holes to easily accommodate a range of VESA wall mounts
- User-friendly, on-screen menus and front panel controls for adjusting monitor display parameters to your specific preferences

Certifications and Approvals

Region	Certification
Europe	CE
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Parts Included

Quant.	Component
1	Bosch General Purpose Color LCD Flat Panel Monitor
1	VGA to VGA cable 1.8 m (5.9 ft)
1	Trigger Cable
2	3-wire power cords with a grounded plug 1.8 m (6 ft): one (1) with a European/Continental plug type and one (1) with a U.S. plug type
1	User's Manual

Technical Specifications**Electrical**

	UML-080-90	UML-100-90
Rated Voltage	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz
Voltage Range	100 to 240 V	100 to 240 V
Power at Rated Voltage	< 35 W	< 35 W
Sync Format	PAL/NTSC	PAL/NTSC
LCD Panel	TFT LCD	TFT LCD
Active Display Area (H x V)	170.4 x 127.8 mm (6.7 x 5.0 in.)	211.2 x 158.4 mm (8.3 x 6.2 in.)
Viewable Picture Area	8.4 in. (213.4 mm) measured diagonally	10.4 in. (264.2 mm) measured diagonally
Pixel Pitch: (H x V)	0.213 x 0.213 mm (0.01 x 0.01 in.)	0.264 x 0.264 mm (0.01 x 0.01 in.)
Resolution	800 x 600 pixels	800 x 600 pixels
Frequency	Horizontal: 31–48 KHz Vertical: 56–75 Hz	Horizontal: 31–48 KHz Vertical: 56–75 Hz
Aspect Ratio	4:3	4:3
Display Colors	16.2 million	16.2 million
Response Time	10 ms (typical)	20 ms (typical)
Backlight	Cold cathode fluorescent tube, rated life 50,000 hours	Cold cathode fluorescent tube, rated life 50,000 hours

LCD Panel Optical Characteristics

	UML-080-90	UML-100-90
Luminance	250 cd/m ² (typical)	230 cd/m ² (typical)
Contrast Ratio	600:1 (typical)	500:1 (typical)
Viewing Angle (H x V)	160° x 140°	160° x 140°

Video Input**All Models**

BNC	1.0 Vp-p, 75 Ω termination loop-through output
Y/C (S-video)	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal), 75 Ω termination

PC Input**UML-080-90****UML-100-90**

VGA	XGA supported	XGA supported
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PC Timing Modes

640 x 480	60/72/75 Hz	60/72/75 Hz
800 x 600	60/72/75 Hz	60/72/75 Hz
1024 x 768	60/70/75 Hz	60/72/75 Hz

Controls**Video Input****All Models**

Front Panel	Push-buttons
Input	Selects: Video1, Video2, S-video, VGA
Menu	Selects on-screen display (OSD), up cursor, down cursor/auto adjust, left cursor, right cursor
Power	On/Off

Indicators**All Models**

LED	Power On (green) Power Off, Standby (red)
On-screen	VGA: Check input signal Video: Flashes "AV1" or "AV2" when there is a black screen

Connectors**All Models**

Video 1 (AV1)	Composite video: two (2) BNC (1 in, 1 out)
Video 2 (AV2)	Composite video: two (2) BNC (1 in, 1 out)
VGA	One (1) RGB 15-pin D-sub in
Y/C (S-video)	Mini-DIN, 4-pin one (1) channel input
Audio In	Two (2) RCA (1 left, 1 right)
Trigger Input	One (1) 1/8 in. mini phono plug
RS-232	Port used for firmware updates
Power Input	5.5 mm DC input jack
Power Adapter (included)	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 2.5 A

Mechanical**UML-080-90****UML-100-90**

Cabinet Material	Front: Plastic Rear: Metal
Finish	Textured
Mount	Wall mounting compatible with standard bracket, 75 mm (2.95 in.) centers, M4 thread

UML-080-90**UML-100-90**

LCD Dimensions (W x H x D)	219 x 184 x 32.5 mm 8.6 x 7.2 x 1.3 in.	256 x 225 x 32.5 mm 10.1 x 8.9 x 1.3 in.
Weight	1.16 kg (2.56 lb)	1.53kg (3.37 lb)

Environmental**All Models**

Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	–20 to 60°C (–4°F to 140°F)
Humidity	93%

Ordering Information**UML-080-90 8.4-inch General Purpose****UML-080-90****LCD Monitor**

8.4-inch (213.4 mm) LCD monitor, 500 TVL, 800 X 600 resolution, VGA, CBVS, audio, 120/230 VAC, 50/60 HZ

UML-100-90 10.4-inch General Purpose**UML-100-90****LCD Monitor**

10.4-inch (264.2 mm) LCD monitor, 500 TVL, 800 X 600 resolution, VGA, CBVS, audio, 120/230 VAC, 50/60 HZ

Accessories**UMM-LCDUB-RM Rack Mount Bracket for LCD Monitors****UMM-LCDUB-RM**

Supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet

UML-1x1 Series 15-, 17-, 19-inch General Purpose LCD Flat Panel Monitors



Features

- ▶ **Supports high-resolution 500 TVL, up to 1280 x 1024 resolution—1.3 Megapixels (UML-191-90 and UML-171-90) or 1024 x 768 resolution (UML-151-90)**
- ▶ **Maximum brightness of 250 to 300 cd/m²**
- ▶ **Maximum contrast ratio of 600:1 to 1000:1 for excellent color accuracy and consistency**
- ▶ **Minimum response time of five to eight ms reduces smearing and ghosting**
- ▶ **100/240 VAC, 50/60 Hz auto-ranging internal power supply**
- ▶ **Low power consumption (less than 45 W)**
- ▶ **Looping composite and Y/C (S-video) inputs**
- ▶ **VGA input for DVR or PC applications**
- ▶ **3D comb filter and de-interlace circuitry for high-quality video**
- ▶ **Front panel control lockout**

Bosch LCD flat panel monitors are high-resolution color monitors ideal for use with analog video, digital video recorder (DVR), and PC applications. The monitors feature a color liquid crystal display (LCD) flat-screen panel and are available with 15-in., 17-in., and 19-in. viewable picture areas. Each monitor also features a wide range of horizontal and vertical viewing angles that provide comfortable, clear viewing – whether you place it on a desktop or mount it to a wall or in a rack.

Functions

Excellent image quality

Bosch LCD monitors automatically adapt to the input resolution of the incoming video signal (up to 1280 x 1024 pixels or 1.3 Megapixels). The monitors' analog VGA input easily accommodates the widespread use of PCs in today's security surveillance systems. Their high contrast ratio (600:1 to 1000:1) and high brightness rating (250 to 300 cd/m²) offer excellent color accuracy and imaging for easier viewing and interpretation of images. The panel refreshes every five to eight milliseconds, so you get crisp, clear images with less smearing - and less image "ghosting" in fast-motion video.

Key benefits of LCD monitors

Long-life fluorescent backlights help avoid luminance degradation on the LCD monitor – so it easily maintains its brightness level over time. This is an advantage over aging CRT-type monitors that become progressively dimmer. The consistent brightness also provides a sharp display image, without the constant flickering that you typically see in CRT monitors. This allows you to use the LCD monitor longer without eyestrain or excessive fatigue.

Additional advantages

The Bosch family of standard-performance LCD monitors also features:

- Low power consumption
- Automatic adaptation to fluctuating electricity loads while protecting your circuitry
- Standard 100 mm (3.9 in.) mounting holes to easily accommodate a range of VESA wall mounts
- User-friendly, on-screen menus and front panel controls for adjusting monitor display parameters to your specific preferences

Certifications and Approvals

Region	Certification
Europe	CE
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Technical Specifications

Electrical

	UML-151-90	UML-171-90	UML-191-90
Rated Voltage	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz
Voltage Range	100-240 VAC	100-240 VAC	100-240 VAC
Power at Rated Voltage	25 W operation, 5 W standby	40 W operation, 5 W standby	45 W operation, 5 W standby
Sync Format	PAL/NTSC	PAL/NTSC	PAL/NTSC

	UML-151-90	UML-171-90	UML-191-90
LCD Panel	TFT LCD	TFT LCD	TFT LCD
Screen Size (H x V)	304.1 x 228.1 mm (12.0 x 9.0 in.)	338.0 x 270.0 mm (13.3 x 10.6 in.)	376.0 x 301.0 mm (14.8 x 11.9 in.)
Viewable Picture Area	15 in. (381 mm) measured diagonally	17 in. (432 mm) measured diagonally	19 in. (483 mm) measured diagonally
Pixel Pitch: (H x V)	0.297 x 0.297 mm (0.01 x 0.01 in.)	0.264 x 0.264 mm (0.01 x 0.01 in.)	0.294 x 0.294 mm (0.01 x 0.01 in.)
Resolution	1024 x 768 pixels, 500 TV lines typical	1280 x 1024 pixels, 500 TV lines typical	1280 x 1024 pixels, 500 TV lines typical
Aspect Ratio	4:3	5:4	5:4
Display Colors	16.7 million colors	16.7 million colors	8-bit interface; 16.7 million colors
Response Time	< 8 ms	< 5 ms	< 5 ms
Backlight	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours	Four (4) cold cathode fluorescent tubes, rated life 50,000 hours
LCD Panel Optical Characteristics			
Luminance	250 cd/m ² , anti-glare, hard-coating treatment	300 cd/m ² , anti-glare, hard-coating treatment	300 cd/m ² , anti-glare, hard-coating treatment
Contrast Ratio	600:1	1000:1	800:1
Viewing Angle	160°/160°	160°/160°	160°/160°
Video Input	UML-151-90	UML-171-90	UML-191-90
Composite Video (CVBS)	1.0 Vp-p (0.5–1.5 Vp-p), automatic switching from 75 Ω unbalanced termination to Hi-Z with passive loop-through operation		
Y/C (S-video)	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal), 75 Ω termination		
PC Input	UML-151-90	UML-171-90	UML-191-90
Analog RGB	0.7 Vp-p (0.5–1 Vrms)		
PC Timing Modes			
640 x 480	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
800 x 600	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
1024 x 768	60/70/75 Hz	60/70/75 Hz	60/70/75 Hz
1280 x 1024		60/75 Hz	60/75 Hz
Controls			
Video Input	UML-151-90	UML-171-90	UML-191-90
Front Panel	Push-buttons		
Input	Selects: Video1, Video2, S-video, VGA		
Menu	Selects on-screen display (OSD), up cursor, down cursor/auto adjust, left cursor, right cursor		
Power	On/Off		
Front Panel Lockout	Multiple push-button combination		

On-screen Display	UML-151-90	UML-171-90	UML-191-90
Video Mode	Input Source, Screen, OSD, Utility		
PC Mode	Input Screen, OSD, Color, Utility		
Indicators	UML-151-90	UML-171-90	UML-191-90
LED	Power On (green) Standby (blinking red) Unsupported Mode (green) Power Off (red)		
On-screen	VGA: Check input signal Video: Flashes "AV1" or "AV2" when there is a black screen		
Connectors	UML-151-90	UML-171-90	UML-191-90
Video 1 (AV1)	Composite video: two (2) BNC (1 in, 1 out)		
Video 2 (AV2)	Composite video: two (2) BNC (1 in, 1 out)		
Y/C (S-video)	Two (2) mini-DIN, 4-pin (1 in, 1 out)		
RGB	One (1) VGA cable included		
Power Input	5.5 mm DC input jack		
Power Adapter (included)	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 3.3 A	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 4.1 A	
Mechanical			
	UML-151-90	UML-171-90	UML-191-90
Cabinet Material	ABS plastic		
Finish	Black		
Mount	Wall mounting compatible with standard bracket, 100 mm (3.9 in.) centers, M4 thread		
Dimensions (W x H x D)			
Monitor with Base	352 x 355 x 200 mm (13.86 x 14.0 x 7.9 in.)	382.4 x 390.5 x 200 mm (15.1 x 15.4 x 7.9 in.)	430 x 428 x 200 mm (16.9 x 16.9 x 7.9 in.)
Monitor Only	352 x 292 x 58 mm (13.9 x 11.5 x 2.2 in.)	382.4 x 330.0 x 58.7 mm (15.1 x 13.0 x 2.3 in.)	420 x 374 x 60 mm (16.9 x 14.7 x 2.4 in.)
Weight			
Monitor with Base	3.7 kg (8.1 lb)	6.6 kg (14.6 lb)	7.6 kg (16.9 lb)
Monitor Only	2.5 kg (5.6 lb)	4.1 kg (9.05 lb)	5.9 kg (13.1 lb)
Environmental			
	UML-151-90	UML-171-90	UML-191-90
Operating Temperature	0°C to 40°C (32°F to 104°F)		
Storage Temperature	–20°C to 60°C (–4°F to 140°F)		
Humidity	Maximum 90%, non-condensing		
Parts Included			
One (1) Bosch General Purpose Color LCD Flat Panel Monitor			
One (1) VGA to VGA cable			
Two (2), 3-wire power cords with a grounded plug: one (1) with a European/Continental plug type and one (1) with a U.S. plug type			

Ordering Information**UML-191-90 19-inch Color LCD Display Monitor** **UML-191-90**

19-inch (483 mm) color LCD monitor, 3D image, 500 TVL, 1280 x 1024 resolution, VGA, CVBS, audio, 120/230 VAC, 50/60 HZ

Accessories**UMM-LW-20B Fixed Wall Mount** **UMM-LW-20B**
Fixed wall mount for flat panel LCD monitors, black**UMM-LW-30B Swivel/Tilt Wall Mount** **UMM-LW-30B**
Swivel/Tilt wall mount for flat panel LCD monitors, black**UMM-LCDUB-RM Rack Mount Bracket for LCD Monitors** **UMM-LCDUB-RM**
Supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet

UML Series 15-, 17-, 19-inch General Purpose LCD Flat Panel Monitors



Features

- ▶ **Supports high-resolution 500 TVL, up to 1280 x 1024 resolution—1.3 Megapixels (UML-190-90 and UML-170-90) or 1024 x 768 resolution (UML-150-90)**
- ▶ **Maximum brightness of 250 to 300 cd/m²**
- ▶ **Maximum contrast ratio of 600:1 to 1000:1 for excellent color accuracy and consistency**
- ▶ **Minimum response time of five to eight ms reduces smearing and ghosting**
- ▶ **100/240 VAC, 50/60 Hz auto-ranging internal power supply**
- ▶ **Low power consumption (less than 45 W)**
- ▶ **Looping composite and Y/C (S-video) inputs**
- ▶ **VGA input for DVR or PC applications**
- ▶ **3D comb filter and de-interlace circuitry for high-quality video**
- ▶ **Front panel control lockout**

Bosch LCD flat panel monitors are high-resolution color monitors ideal for use with analog video, digital video recorder (DVR), and PC applications. The monitors feature a color liquid crystal display (LCD) flat-screen panel and are available with 15-in., 17-in., and 19-in. viewable picture areas. Each monitor also features a wide range of horizontal and vertical viewing angles that provide comfortable, clear viewing – whether you place it on a desktop or mount it to a wall or in a rack.

Functions

Excellent image quality

Bosch LCD monitors automatically adapt to the input resolution of the incoming video signal (up to 1280 x 1024 pixels or 1.3 Megapixels). The monitors' analog VGA input easily accommodates the widespread use of PCs in today's security surveillance systems. Their high contrast ratio (600:1 to 1000:1) and high brightness rating (250 to 300 cd/m²) offer excellent color accuracy and imaging for easier viewing and interpretation of images. The panel refreshes every five to eight milliseconds, so you get crisp, clear images with less smearing - and less image "ghosting" in fast-motion video.

Key benefits of LCD monitors

Long-life fluorescent backlights help avoid luminance degradation on the LCD monitor – so it easily maintains its brightness level over time. This is an advantage over aging CRT-type monitors that become progressively dimmer. The consistent brightness also provides a sharp display image, without the constant flickering that you typically see in CRT monitors. This allows you to use the LCD monitor longer without eyestrain or excessive fatigue.

Additional advantages

The Bosch family of standard-performance LCD monitors also features:

- Low power consumption
- Automatic adaptation to fluctuating electricity loads while protecting your circuitry
- Standard 100 mm (3.9 in.) mounting holes to easily accommodate a range of VESA wall mounts
- User-friendly, on-screen menus and front panel controls for adjusting monitor display parameters to your specific preferences

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Technical Specifications

Electrical

	UML-150-90	UML-170-90	UML-190-90
Rated Voltage	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz	120/230 VAC, 50/60 Hz
Voltage Range	100-240 VAC	100-240 VAC	100-240 VAC
Power at Rated Voltage	25 W operation, 5 W standby	40 W operation, 5 W standby	45 W operation, 5 W standby
Sync Format	PAL/NTSC	PAL/NTSC	PAL/NTSC
LCD Panel	TFT LCD	TFT LCD	TFT LCD

	UML-150-90	UML-170-90	UML-190-90
Screen Size (H x V)	304.1 x 228.1 mm (12.0 x 9.0 in.)	338.0 x 270.0 mm (13.3 x 10.6 in.)	376.0 x 301.0 mm (14.8 x 11.9 in.)
Viewable Picture Area	15 in. (381 mm) measured diagonally	17 in. (432 mm) measured diagonally	19 in. (483 mm) measured diagonally
Pixel Pitch: (H x V)	0.297 x 0.297 mm (0.01 x 0.01 in.)	0.264 x 0.264 mm (0.01 x 0.01 in.)	0.294 x 0.294 mm (0.01 x 0.01 in.)
Resolution	1024 x 768 pixels, 500 TV lines typical	1280 x 1024 pixels, 500 TV lines typical	1280 x 1024 pixels, 500 TV lines typical
Aspect Ratio	4:3	5:4	5:4
Display Colors	16.7 million colors	16.7 million colors	8-bit interface; 16.7 million colors
Response Time	< 8 ms	< 5 ms	< 5 ms
Backlight	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours	Four (4) cold cathode fluorescent tubes, rated life 50,000 hours
LCD Panel Optical Characteristics	UML-150-90	UML-170-90	UML-190-90
Luminance	250 cd/m, anti-glare, hard-coating treatment	300 cd/m, anti-glare, hard-coating treatment	300 cd/m, anti-glare, hard-coating treatment
Contrast Ratio	600:1	1000:1	800:1
Viewing Angle	160°/160°	160°/160°	160°/160°
Video Input	UML-150-90	UML-170-90	UML-190-90
Composite Video (CVBS)	1.0 Vp-p (0.5–1.5 Vp-p), automatic switching from 75 Ω unbalanced termination to Hi-Z with passive loop-through operation		
Y/C (S-video)	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal), 75 Ω termination		
PC Input	UML-150-90	UML-170-90	UML-190-90
Analog RGB	0.7 Vp-p (0.5–1 Vrms)	0.7 Vp-p (0.5–1 Vrms)	0.7 Vp-p (0.5–1 Vrms)
PC Timing Modes			
640 x 480	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
800 x 600	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
1024 x 768	60/70/75 Hz	60/70/75 Hz	60/70/75 Hz
1280 x 1024		60/75 Hz	60/75 Hz
Controls			
Video Input	UML-150-90	UML-170-90	UML-190-90
Front Panel	Push-buttons		
Input	Selects: Video1, Video2, S-video, VGA		
Menu	Selects on-screen display (OSD), up cursor, down cursor/auto adjust, left cursor, right cursor		
Power	On/Off		
Front Panel Lockout	Multiple push-button combination		

On-screen Display	UML-150-90	UML-170-90	UML-190-90
Video Mode	Input Source, Screen, OSD, Utility		
PC Mode	Input Screen, OSD, Color, Utility		
Indicators	UML-150-90	UML-170-90	UML-190-90
LED	Power On (green) Standby (blinking red) Unsupported Mode (green) Power Off (red)		
On-screen	VGA: Check input signal Video: Flashes "AV1" or "AV2" when there is a black screen		
Connectors	UML-150-90	UML-170-90	UML-190-90
Video 1 (AV1)	Composite video: two (2) BNC (1 in, 1 out)		
Video 2 (AV2)	Composite video: two (2) BNC (1 in, 1 out)		
Y/C (S-video)	Two (2) mini-DIN, 4-pin (1 in, 1 out)		
RGB	One (1) VGA cable included		
Power Input	5.5 mm DC input jack		
Power Adapter (included)	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 3.3 A	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 4.1 A	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 4.1 A
Mechanical			
	UML-150-90	UML-170-90	UML-190-90
Cabinet Material	ABS plastic		
Finish	Black		
Mount	Wall mounting compatible with standard bracket, 100 mm (3.9 in.) centers, M4 thread		
Dimensions (W x H x D)			
Monitor with Base	352 x 355 x 200 mm (13.86 x 14.0 x 7.9 in.)	382.4 x 390.5 x 200 mm (15.1 x 15.4 x 7.9 in.)	430 x 428 x 200 mm (16.9 x 16.9 x 7.9 in.)
Monitor Only	352 x 292 x 58 mm (13.9 x 11.5 x 2.2 in.)	382.4 x 330.0 x 58.7 mm (15.1 x 13.0 x 2.3 in.)	420 x 374 x 60 mm (16.9 x 14.7 x 2.4 in.)
Weight			
Monitor with Base	3.7 kg (8.1 lb)	4.9 kg (10.8 lb)	5.2 kg (11.4 lb)
Monitor Only	2.5 kg (5.6 lb)	3.8 kg (8.4 lb)	4.1 kg (9.0 lb)
Environmental			
	UML-150-90	UML-170-90	UML-190-90
Operating Temperature	0°C to 40°C (32°F to 104°F)		
Storage Temperature	–20°C to 60°C (–4°F to 140°F)		
Humidity	Maximum 90%, non-condensing		

Parts Included

One (1) Bosch General Purpose Color LCD Flat Panel Monitor
One (1) VGA to VGA cable
Two (2), 3-wire power cords with a grounded plug: one (1) with a European/Continental plug type and one (1) with a U.S. plug type

Ordering Information

Accessories

UMM-LW-20B Fixed Wall Mount UMM-LW-20B

Fixed wall mount for flat panel LCD monitors, black

UMM-LW-30B Swivel/Tilt Wall Mount UMM-LW-30B

Swivel/Tilt wall mount for flat panel LCD monitors, black

Bosch General Purpose Family of Color LCD Flat Panel Monitors

Rated Voltage
Voltage Range
Power at Rated Voltage
Sync Format
LCD Panel
Screen Size (H x V)
Viewable Picture Area
Pixel Pitch (H x V)
Resolution
Aspect Ratio
Display Colors
Response Time
Backlight
LCD Panel Optical Characteristics
Luminance
Contrast Ratio (CR)
Viewing Angle (Horizontal/Vertical)
Video Input
Composite Video (CVBS)
Y/C (S-video)
PC Input
Analog RGB
PC Timing Modes
640 x 480
800 x 600
1024 x 768
1280 x 1024
Controls
Front Panel
Input
Menu
Power
Front Panel Lockout
On-screen Display
Video Mode
PC Mode
Indicators
LED
On-screen

Bosch General Purpose Family of Color LCD Flat Panel Monitors**Connectors****Video 1 (AV 1)**

Video 2 (AV 2)

Y/C (S-video)

RGB

Power Input

Power Adapter (included)

Mechanical**Cabinet Material**

Finish

Mount

Dimensions (W x H x D)**Monitor with Base****Monitor Only**

Weight**Monitor with Base****Monitor Only**

Environmental**Operating Temperature**

Storage Temperature

Humidity

Parts Included

MON201CL 20-inch Color LCD Flat Panel Display Monitor



Features

- ▶ Provides 500 TV lines of resolution
- ▶ Loop-through composite video, Y/C (S-video) and audio inputs
- ▶ Analog VGA input 800 x 600 max.
- ▶ NTSC and PAL formats
- ▶ Universal power source
- ▶ Front panel control lockout
- ▶ On-screen display (OSD) for setup and adjustment
- ▶ 12 VDC power outlet for public view monitoring

Designed for the CCTV security marketplace, the MON201CL monitor includes two looping composite video inputs, two looping audio inputs, and one looping Y/C input. Additionally, this model includes an analog VGA input to accommodate the increasing use of 'PCs' and digital video devices in security applications.

The MON201CL has been tested for compatibility of operation with analog output devices such as the Allegiant Matrix Switcher System, the Divar Digital Recorder, and standard multiplexers. It is also recommended for use with devices and systems with VGA output of 800 x 600 maximum resolution.

The versatile design allows it to automatically accept NTSC and PAL signal formats, and power supply voltages from 96 to 256 VAC. When connected to multiplexer devices, the underscan function provides a multi-screen display of individual cameras without loss or distortion of images.

Its compact styling, including an LCD panel width of 86 mm (3.4 in.) and wide range viewing angle, makes the MON201CL an excellent choice for space limited and public view applications. Specific features to support public view monitoring include a DC power outlet for a 12 VDC camera; user friendly on-screen menus accessible via front panel controls or a remote control transmitter; and a front panel lockout feature to prevent access once monitor set up is completed.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Technical Specifications

Electrical

Rated Voltage	120/230 VAC, 50/60 Hz
Voltage Range	96 to 256 VAC
Power at Rated Voltage	55 W
Sync Format	Auto-sensing
NTSC	525 lines, 60 fields/sec.
PAL	625 lines, 50 fields/sec.
LCD Panel	TFT LCD
Screen Size (H x V)	408 x 306 mm (16.1 x 12.0 in.)
Viewable Picture Area	51 cm (20.1 in.) measured diagonally
Pixel Pitch: (H x V)	0.51 x 0.51 mm (0.02 x 0.02 in.)
Resolution	500 TVL
Aspect Ratio	4:3
Display Colors	16.8 million colors
Response Time	16 ms
Backlight	Four (4) cold cathode fluorescent tubes, rated life 50,000 hours, at 50% brightness

Optical Characteristics

Luminance	450 cd/m ²
Contrast Ratio	500:1
Viewing Angle	160° horizontal, 120° vertical

Video Input

Composite Video (CVBS)	1.0 Vp-p (0.5–2.0 Vp-p), automatic switching from 75 Ohm unbalanced termination to Hi-Z with loop-through operation
Y/C (S-video)	1.0 Vp-p (0.5–2.0 Vp-p), automatic switching from 75 Ohm unbalanced termination to Hi-Z with loop-through operation

VGA Input

Analog RGB	0.707 Vp-p/75 Ohm	
VGA Timing Modes	640 x 480	60/72/75 Hz
	800 x 600	60/70/72/75 Hz
Audio Input	Level: 1.0 Vp-p/1 kHz	
Audio Output	Loop-through line level Speaker: two (2), 4 W	

Controls

Front Panel	Push-button
Input	Select CVBS 1, CVBS 2, Y/C, or VGA input
Menu	Selects on-screen display (OSD)
Select	Selects sub-menu item
Adjust	Adjustment decrease Adjustment increase
Power	On/Off
Front Panel Lockout	Select from General OSD menu
Remote Control	Controls monitor functions

On-screen Display

General	Language, Backlight, Power-on Option, Key Lock, Volume, Treble, Bass Balance
Video	Brightness, Contrast, Color, Tint (NTSC only), Sharpness, Color Temperature, Video System, Comb Filter, Scan Mode, Display, Default
VGA	Auto, Brightness, Contrast, H-position, V-position, Clock, Phase, Color Temperature, White Balance, Display, Default

Indicators

LED	Power-on (green), standby, (amber)
On-screen	Video loss

Connectors

Input 1	Composite Video: two (2) BNC (1 in, 1 out) audio: four (4) RCA (2 in, 2 out; left, right)
Input 2	Composite Video: two (2) BNC (1 in, 1 out) audio: four (4) RCA (2 in, 2 out; left, right)
Y/C (S-video)	Two (2) mini-DIN, 4-pin (1 in, 1 out)
VGA	One (1) 15-pin D-sub
DC Power Output	Bayonet connector, 12 VDC regulated, 500 mA
Power Cord	Two (2), 3-wire with grounded plugs, 1.8 m (6 ft.) long. One (1) with a European/Continental plug type and one (1) with a U.S. plug type

Mechanical

Cabinet	Material: metal, Finish: charcoal, Wall-mounting: compatible with VESA standard bracket, 100 mm (3.94 in.) centers
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Dimensions

LCD Panel with Base (W x D x H)	461 x 178 to 229 x 397 mm (18.12 x 7 to 9 x 15.62 in.)
LCD Panel Only (W x D x H)	461 x 86 x 397 mm (18.12 x 3.38 x 15.62 in.)
Weight	7.3 kg (16.1 lb)

Environmental

Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Humidity	10% to 95%, non-condensing

Ordering Information**MON201CL 20-inch Color LCD Flat Panel Display Monitor****MON201CL**

51 cm (20 in.), PAL/NTSC, 500 TVL with audio, 800 x 600 resolution, CVBS, VGA, Y/C, 120/230 VAC, 50/60 Hz

19RTLБ 19-inch Color LCD Display Monitor (VGA)



Features

- ▶ **VGA input for DVR or PC applications**
- ▶ **1280 x 1024 resolution (1.3 Megapixel)**
- ▶ **Horizontal/vertical viewing angle of 160°**
- ▶ **5 ms refresh time reduces smearing and ghosting**
- ▶ **1000:1 contrast ratio provides excellent color accuracy and conformity**
- ▶ **High brightness of 300 cd/m2**
- ▶ **Internal speakers**
- ▶ **Optional wall mounts**

The 19RTLБ is a 19-inch, high-resolution VGA color monitor for use with digital video recorders (DVR) and PC applications. The monitor is equipped with a color liquid crystal display (LCD) flat screen display panel with a horizontal and vertical viewing angle of 160°, providing comfortable, clear viewing whether placed on a desktop, wall mounted or rack mounted. In addition, the monitor has two internal speakers for tracking audio with the incoming video signal.

Functions

The monitor automatically adapts to the input resolution (up to 1280 x 1024 pixels or 1.3 Megapixel) of the incoming video signal. The 19RTLБ monitor features an analog VGA input to accommodate the widespread use of PCs in security surveillance systems. The monitor's 1000:1 high contrast ratio and high brightness rating (300 cd/m2) offer excellent color accuracy and imaging for easier viewing and interpretation of the received images. The

panel refreshes every five milliseconds, providing crisp clear images with less smearing and image ghosting in fast motion video.

Long-life fluorescent backlights lets the LCD monitor avoid luminance degradation so the monitor easily maintains its brightness level over time as contrasted to the progressive dimness of aging CRT-type monitors. The 19RTLБ monitor's consistent brightness also provides a sharp display image without the constant flickering typical in CRT monitors. This allows longer continued use of the LCD monitor with little eyestrain or excessive fatigue.

The 19RTLБ monitor features low power consumption and automatically adapts to fluctuating electricity loads while protecting circuitry. In addition, the monitor is equipped with VESA®-compliant mounting holes to accommodate a range of wall mounts easily. User-friendly, on-screen menus and front panel controls make it simple to adjust the monitor display parameters to the user's preferences.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Technical Specifications

Electrical

Rated Voltage	120/230 VAC, 50/60 Hz
Voltage Range	90 to 264
Power at Rated Voltage	35 W operation 5 W standby
LCD Panel	TFT LCD
Screen Size (H x V)	376 x 301 mm (14.8 x 11.9 in.)
Viewable Picture Area	19 in. (48 cm) measured diagonally
Pixel Pitch (H x V)	0.294 x 0.294 mm (0.01 x 0.01 in.)
Resolution	1280 x 1024 pixels
Aspect Ratio	5:4
Display Colors	8-bit interface; 16.7 million colors
Response Time	5 ms
Backlight	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours

Optical Characteristics

Luminance	300 cd/m ² , anti-glare, hard-coating treatment
Contrast Ratio (CR)	1000:1
Viewing Angle	160° horizontal, 160° vertical @ CR ≥ 10

VGA Input

Analog RGB	0.7 Vp-p (0.5–1 Vrms)
VGA Timing Modes	640 x 480, 60/72/75 Hz 800 x 600, 60/72/75 Hz 1024 x 768, 60/70/75 Hz 1280 x 1024, 60/75 Hz

Audio Input	1.0 V line level
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Audio Output	Speaker: two (2), 1 W
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Controls

Front Panel	Push-buttons
Source	Selects VGA input
Menu	Selects on-screen display (OSD) up cursor, down cursor/auto adjust, left cursor, right cursor
Power	On/Off

On-Screen Display

VGA	Picture, color, OSD, misc.
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Indicators

LED	Power On (green) Standby (red)
On-Screen	"Off Mode" (flashing)

Connectors

Audio	PC: one (1) 1/8 in. mini phono plug
VGA	One (1) VGA cable included
Power Input	5.5 mm DC input jack
Power Adapter (Included)	Input: 100–240 VAC, 50/60 Hz, Output: 12 VDC, 4.2 A

Mechanical

Cabinet	Material: ABS Finish: black Wall mounting compatible with standard bracket, 100 mm centers, M4 thread
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Dimensions

Monitor with Base (W x H x D)	430 x 428 x 200 mm (16.9 x 16.9 x 7.9 in.)
Monitor Only (W x H x D)	420 x 374 x 60 mm (16.5 x 14.7 x 2.4 in.)
Weight	Monitor with base: 6.61 kg (14.6 lb) Monitor only: 4.1 kg (9.05 lb)

Environmental

Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	–20°C to 60°C (–4°F to 140°F)
Humidity	Max. 90%, non-condensing

Ordering Information

19RTL B 19-inch Color LCD Display Monitor (VGA)	19RTL B
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Accessories

UMM-LW-20B Fixed Wall Mount Fixed wall mount for flat panel LCD monitors, black	UMM-LW-20B
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UMM-LW-30B Swivel/Tilt Wall Mount Swivel/Tilt wall mount for flat panel LCD mon- itors, black	UMM-LW-30B
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UML-19P-90 19-inch Color LCD Display Monitor (VGA)



Features

- ▶ **Supports up to 1280 x 1024 resolution—1.3 Megapixels**
- ▶ **Maximum brightness of 300 cd/m²**
- ▶ **Maximum contrast ratio of 800:1 for excellent color accuracy and consistency**
- ▶ **Minimum response time of five ms reduces smearing and ghosting**
- ▶ **100/240 VAC, 50/60 Hz auto-ranging internal power supply**
- ▶ **Low power consumption (less than 40 W)**
- ▶ **VGA and DVI inputs for DVR or PC applications**
- ▶ **Optional rack and wall mounts**

The Bosch UML-19P-90 is a 19-inch, high-resolution LCD monitor with analog (VGA) and digital (DVI) inputs for use with digital video recorders (DVR) and PC applications. The monitor is equipped with a color liquid crystal display (LCD) flat screen display panel with a horizontal and vertical viewing angle of 160°, providing comfortable, clear viewing whether placed on a desktop, wall mounted, or rack mounted. In addition, the monitor has two (2) internal speakers for tracking audio with the incoming video signal.

Functions

Excellent image quality

The Bosch UML-19P-90 LCD monitor automatically adapts to the input resolution of the incoming video signal (up to 1280 x 1024 pixels or 1.3 Megapixels). The monitor's analog VGA input easily accommodates the widespread use of PCs in today's security surveillance systems. The high contrast ratio (800:1) and high brightness rating (300 cd/m²) offers excellent color accuracy and imaging for easier viewing and interpretation of images. The panel refreshes every five milliseconds, so you get crisp, clear images with less smearing - and less image "ghosting" in fast-motion video.

Key benefits of LCD monitor

Long-life fluorescent backlights help avoid luminance degradation on the LCD monitor – so it easily maintains its brightness level over time. This is an advantage over aging CRT-type monitors that become progressively dimmer. The consistent brightness also provides a sharp display image, without the constant flickering that you typically see in CRT monitors. This allows you to use the LCD monitor longer without eyestrain or excessive fatigue.

Additional advantages

The Bosch UML-19P-90 LCD monitor also features:

- Low power consumption
- Automatic adaptation to fluctuating electricity loads while protecting your circuitry
- Standard 100 mm (3.9 in.) mounting holes to easily accommodate a range of VESA wall mounts
- User-friendly, on-screen menus and bottom panel controls for adjusting monitor display parameters to your specific preferences

Certifications and Approvals

Region	Certification
Europe	CE
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Technical Specifications

Electrical

Rated Voltage	120/230 VAC, 50/60 Hz
Voltage Range	100-240 VAC
Power at Rated Voltage	40 W operation, 3 W standby
Sync Format	Separator Sync (H, V sync)
LCD Panel	TFT LCD
Screen Size (H x V)	376.0 x 301.0 mm (14.8 x 11.9 in.)

Viewable Picture Area	19 in. (482 mm) measured diagonally
Pixel Pitch: (H x V)	0.294 x 0.294 mm (0.01 x 0.01 in.)
Resolution	Up to 1280 x 1024 pixels
Aspect Ratio	5:4
Display Colors	8-bit interface; 16.7 million colors
Response Time	5 ms
Backlight	Four (4) cold cathode fluorescent tubes, rated life 50,000 hours
LCD Panel Optical Characteristics	
Luminance	300 cd/m ² , anti-glare, hard-coating treatment
Contrast Ratio	800:1
Viewing Angle	160°/160°
PC Input	
Analog RGB	0.7 Vp-p (0.5–1 Vrms)
PC Timing Modes	
640 x 480	60/72/75 Hz
800 x 600	60/72/75 Hz
1024 x 768	60/70/75 Hz
1280 x 1024	60/75 Hz
Controls	
Video Input	
Bottom Panel	Push-buttons
Input	Selects: VGA, DVI
Menu	Selects on-screen display (OSD), up cursor, down cursor/auto adjust, input select, left cursor, right cursor, audio mute
Power	On/Off
On-screen Display	
PC Mode	Auto adjust, Screen, Color, Utility, Language, OSD, Audio
Indicators	
LED	Power On (green) Standby (red) Unsupported Mode (green) Power Off (red)
On-screen	VGA, DVI: Check input signal
Connectors	
Audio	PC: one (1) 1/8 in. mini phono plug
RGB, DVI	One (1) VGA cable included One (1) DVI-D cable included
Power Input	5.5 mm DC input jack
Power Adapter (included)	Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 4.16 A

Mechanical

Cabinet Material	ABS plastic
Finish	Black
Mount	Wall mounting compatible with standard bracket, 100 mm (3.9 in.) centers, M4 thread

Dimensions (W x H x D)

Monitor with Base	430 x 428 x 200 mm (16.9 x 16.9 x 7.9 in.)
Monitor Only	430 x 374 x 60 mm (16.9 x 14.7 x 2.4 in.)

Weight

Monitor with Base	5.9 kg (13.1 lb)
Monitor Only	5.1 kg (11.2 lb)

Environmental

Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	–20°C to 60°C (–4°F to 140°F)
Humidity	Maximum 90%, non-condensing

Parts Included

One (1) Bosch General Purpose Color LCD Flat Panel Monitor
 One (1) VGA to VGA cable
 One (1) DVI-D to DVI-D cable
 One (1) Audio cable PC-style
 One (1) Power adapter
 Two (2), 3-wire power cords with a grounded plug: one (1) with a European/Continental plug type and one (1) with a U.S. plug type

Ordering Information

UML-19P-90 19-inch LCD Flat Panel Monitor 19-inch (483 mm) color LCD monitor, 1280 X 1024 resolution, VGA, DVI, audio, 120/230 VAC, 50/60 HZ	UML-19P-90
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Accessories

UMM-LW-30B Swivel/Tilt Wall Mount Swivel/Tilt wall mount for flat panel LCD monitors, black	UMM-LW-30B
UMM-LW-20B Fixed Wall Mount Fixed wall mount for flat panel LCD monitors, black	UMM-LW-20B

UML Series 17-, 19-, 20-inch High-performance LCD Flat Panel Monitors



Features

- ▶ **High-resolution—500 TVL, 1600 x 1200 (UML-202-90) or 1280 x 1024 (UML-192-90 and UML-172-90)—image**
- ▶ **Picture-in-Picture or split screen function for viewing video on the PC screen**
- ▶ **Analog RGB, digital DVI, and digital HDMI inputs**
- ▶ **Two (2) composite BNC inputs and loop-through outputs**
- ▶ **Y/C (S-video) and loop-through video and audio inputs**
- ▶ **Long-life fluorescent backlight maintains optimal screen brightness (300 cd/m²) throughout monitor life**
- ▶ **3-D comb filter and de-interlace circuitry for high quality video**
- ▶ **Trigger and Auto Switching features allow the monitors to change input sources**
- ▶ **Easy to use controls with remote and on-screen menu display**
- ▶ **Front panel control lockout**

The Bosch family of high-performance LCD monitors are high-resolution (SXGA / UXGA), high-performance liquid crystal display (LCD) video display monitors. Available in an ergonomic and aesthetically pleasing design, these state-of-the-art monitors include a color thin film transistor (TFT) active matrix LCD panel. Designed for the professional CCTV security marketplace, the Bosch High-performance LCD monitors include two looping composite video inputs, two looping audio inputs and one looping Y/C input.

Functions

Flexible interface

These monitors include an analog RGB mode, a Digital DVI input, and an HDMI (high definition multimedia) input to accommodate the increasing use of PCs and digital video devices in security applications. To enhance the multi-input capability, the monitor includes a “picture-in-picture” function. This also enables any of the composite video or Y/C input to be inserted into the RGB/DVI/HDMI input display.

Features designed for the professional

A security officer can make standard adjustments to monitor display parameters with user-friendly choices displayed using on-screen menus (available in several languages) and front panel controls.

For additional security, the monitor includes a front panel lockout feature that disables the front panel control buttons. Long-life fluorescent backlights maintain the monitor’s brightness level over time, because the LCD monitor design avoids the brightness degradation experienced with aging CRT-type monitors. This energy-saving technology also provides a sharp display, free of the annoying flicker prevalent in traditional CRT monitors, allowing longer use of your LCD monitor with little or no eyestrain.

The monitors also feature an alarm trigger input providing the ability to switch input sources automatically. You can program the monitor to switch input sources and to sound a buzzer when it receives an alarm signal. In addition, the AutoSwitching feature lets the monitor cycle through selected video inputs.

Versatile design

The versatile design allows these monitors to accept NTSC and PAL signal formats automatically as well as power supply voltages from 90 to 256 VAC. Compact styling makes the Bosch High Performance line the color monitors of choice for large-screen, space-constrained applications. With a wide range viewing angle, these LCD monitors may be easily viewed whether they are placed on a desktop, mounted to a VESA standard wall mount, or rack mounted in a standard EIA rack.

Certifications and Approvals

Region	Certification
Europe	CE
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Technical Specifications

Electrical

	UML-172-90	UML-192-90	UML-202-90
Rated Voltage	110/230 VAC, 50/60 Hz	110/230 VAC, 50/60 Hz	110/230 VAC, 50/60 Hz
Voltage Range	90-256 VAC	90-256 VAC	90-256 VAC
Power at Rated Voltage	<45 W	<50 W	70 W
Sync Format	PAL/NTSC	PAL/NTSC	PAL/NTSC
LCD Panel	TFT LCD	TFT LCD	TFT LCD
Screen Size (H x V)	338 x 270 mm (13.3 x 10.6 in.)	376 x 301 mm (14.8 x 11.9 in.)	408 x 306 mm (16 x 12 in.)
Viewable Picture Area	17 in. (432 mm) measured diagonally	19 in. (483 mm) measured diagonally	20.1 in. (511 mm) measured diagonally
Pixel Pitch: (H x V)	0.264 x 0.264 mm (0.01 x 0.01 in.)	0.294 x 0.294 mm (0.01 x 0.01 in.)	0.255 x 0.255 mm (0.01 x 0.01 in.)
Resolution	1280 x 1024 pixels, 500 TV lines typical	1280 x 1024 pixels, 500 TV lines typical	1600 x 1200 pixels, 500 TV lines typical
Aspect Ratio	5:4	5:4	4:3
Display Colors	16.7 million colors	16.7 million colors	16.7 million colors
Response Time	< 5 ms (typical)	< 5 ms (typical)	< 16 ms (typical)
Backlight	Two (2) cold cathode fluorescent tubes, rated life 50,000 hours, at 50% brightness	Four (4) cold cathode fluorescent tubes, rated life 50,000 hours, at 50% brightness	Six (6) cathode fluorescent tubes, rated life 45,000 hours, at 50% brightness
LCD Panel Optical Characteristics	UML-172-90	UML-192-90	UML-202-90
Luminance	300 cd/m2, hard-coating (3H), non-glare treatment		
Contrast Ratio	1000:1	800:1	800:1
Viewing Angle	160°/160°	160°/160°	178°/178°

Video Input All Models

Composite Video (CVBS)	1.0 Vp-p (0.5–1.5 Vp-p), automatic switching from 75 Ω unbalanced termination to Hi-Z with passive loop-through operation		
Y/C (S-video)	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal), 75 Ω termination		
Picture-in-Picture	Video 1, Video 2, S-video		

PC Input UML-172-90 UML-192-90 UML-202-90

Analog RGB	0.7 Vp-p (0.5–1 Vrms)	0.7 Vp-p (0.5–1 Vrms)	0.7 Vp-p (0.5–1 Vrms)
Picture-in-Picture	Video 1, Video 2, S-video		

DVI/RGB/HDMI Timing Modes

640 x 480	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
800 x 600	60/72/75 Hz	60/72/75 Hz	60/72/75 Hz
1024 x 768	60/70/75 Hz	60/70/75 Hz	60/70/75 Hz
1280 x 1024	60 Hz	60 Hz	60 Hz

PC Input	UML-172-90	UML-192-90	UML-202-90
1600 x 1200			60 Hz

Component Timing Modes

640 x 480 (480i)	60 Hz	60 Hz	60 Hz
720 x 576 (576i)	50 Hz	50 Hz	50 Hz
640 x 480 (480P)	60 Hz	60 Hz	60 Hz
720 x 576 (576P)	50 Hz	50 Hz	50 Hz
1280 x 720 (720P)	50/60 Hz	50/60 Hz	50/60 Hz
1920 x 1080 (1080i)			50/60 Hz
1920 x 1080 (1080P)			50/60 Hz

HDMI Timing Modes

640 x 480	50 Hz	50 Hz	50 Hz
720 x 600	50 Hz	50 Hz	50 Hz
1024 x 768	50/60 Hz	50/60 Hz	50/60 Hz
1280 x 1024			50/60 Hz
1600 x 1200			50/60 Hz

Audio Input 1.0 V line level, mono

Audio Output Loop-through line level
Speaker: two (2), 2 W

Controls

Video Input All Models

Front Panel	Push-buttons
Input	Selects Video 1, Video 2, S-video, RGB, DVI, or HDMI input
Menu	Selects on-screen display (OSD) Up arrow, Menu select Down arrow, Menu select Left arrow, decrease Right arrow, increase
Power	On/Off

Front Panel Lockout Multiple push-button combination

On-screen Display All Models

Video Mode	Custom (Brightness, Contrast, Color, Tint, Sharpness), Picture/Sound (Picture Mode, Color Tone, Mute, Volume, Size, DNR, 3D Comb), PIP (PIP, Input Source, Size, Position, Swap, Sound Select), Setup (Reset, Language, OSD Tone, Blue Screen, Key Lock, Trigger, Auto Switching, Firmware Version)
DVI/RGB	Custom (Brightness, Contrast, Sharpness), Picture/Sound (Picture Mode, Color Tone, Mute, Volume, PC, Auto Adjust, H-position, V-position, Frequency), PIP (PIP, Input Source, Size, Position, Swap, Sound Select), Setup (Reset, Language, OSD Tone, Blue Screen, Key Lock, Trigger, Auto Switching, Firmware Version)

Indicators All Models

LED	Power On (green) Power Off (red) Standby/Sleep Mode (flashes red)
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Connectors	UML-172-90	UML-192-90	UML-202-90
Video 1	Composite video: two (2) BNC (1 in, 1 out)		
Video 2	Composite video: two (2) BNC (1 in, 1 out)		
Y/C (S-video)	Two (2) mini-DIN, 4-pin (1 in, 1 out)		
Component	Y, Pb, Pr		
Audio	PC: one (1) 1/8 in. mini phono plug Video: four (4) RCA (2 in, 2 out)		
DVI-D/HDMI/RGB	One (1) DVI in, One (1) HDMI in, One (1) RGB 15-pin D-sub in		
Trigger Input	One (1) 1/8 in. mini phono plug		
Power Cord	Two (2) 3-wire with a grounded plug, 1.8 m (6 ft) long, one (1) with a European/Continental plug type and one (1) with a U.S. plug type		
Power Adapter (attached)	Input: 100–240 VAC 50/60 Hz Output: 12 VDC, 4.2 A		Input: 100–240 VAC, 50/60 Hz Output: 12 VDC, 5.8 A
Mechanical			
	UML-172-90	UML-192-90	UML-202-90
Cabinet Material	Front and Chassis: electrolytic galvanized iron		Front: ABS plastic Chassis: electrolytic galvanized iron
Finish	Charcoal black		
Mount	Wall mounting compatible with standard bracket, 100 mm centers, M4 thread		
Dimensions (W x H x D)			
Monitor	389.7 x 348.9 x 74.5 mm (15.3 x 13.7 x 2.9 in.)	428.5 x 379.0 x 79.5 mm (16.9 x 14.9 x 3.3 in.)	460.4 x 395.1 x 81.0 mm (18.1 x 15.5 x 3.19 in.)
Monitor with Packaging	540 x488 x 180 m (21.3 x 19.2 x 7.1 in.)	540 x488 x 180 m (21.3 x 19.2 x 7.1 in.)	540 x488 x 180 mm (21.3 x 19.2 x 7.1 in.)
Weight			
Monitor	5.86 kg (12.9 lb)	6.36 kg (14.0 lb)	7.50 kg (16.5 lb)
Monitor with Packaging	8.08 kg (17.8 lb)	8.58 kg (18.9 lb)	9.72 kg (21.5 lb)
Environmental			
	All Models		
Operating Temperature	0°C to 40°C (32°F to 104°F)		
Storage Temperature	–20°C to 60°C (–4°F to 140°F)		
Humidity	10%-90%, non-condensing		
Parts Included			
	One (1) Bosch High Performance Color LCD Flat Panel Monitor One (1) VGA to VGA cable, One (1) DVI to DVI cable, Two (2), 3-wire power cords with a grounded plug: one (1) with a European/Continental plug type and one (1) with a U.S. plug type		

Ordering Information

UML-172-90 17-inch Color LCD Display Monitor	UML-172-90
17-inch (432 mm) color LCD monitor, 1280 X 1024 resolution, VGA, DVI, HDMI, CVBS, audio, 120/230 VAC, 50/60 HZ	
UML-192-90 19-inch Color LCD Display Monitor	UML-192-90
19-inch (483 mm) color LCD monitor, 1280 X 1024 resolution, VGA, DVI, HDMI, CVBS, audio, 120/230 VAC, 50/60 HZ	
UML-202-90 20-inch Color LCD Display Monitor	UML-202-90
20-inch (501 mm) color LCD monitor, 1600 X 1200 resolution, VGA, DVI, HDMI, CVBS, audio, 120/230 VAC, 50/60 HZ	
UMM-LW-20B Fixed Wall Mount	UMM-LW-20B
Fixed wall mount for flat panel LCD monitors, black	
UMM-LW-30B Swivel/Tilt Wall Mount	UMM-LW-30B
Swivel/Tilt wall mount for flat panel LCD monitors, black	
Accessories	
UMM-LW-30B Swivel/Tilt Wall Mount	UMM-LW-30B
Swivel/Tilt wall mount for flat panel LCD monitors, black	
UMM-LW-20B Fixed Wall Mount	UMM-LW-20B
Fixed wall mount for flat panel LCD monitors, black	
UMM-LCDUB-RM Rack Mount Bracket for LCD Monitors	UMM-LCDUB-RM
Supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet	

42RTH 42-inch High-performance LCD Monitor



Features

- ▶ **42 in. wide screen (16:9) LCD display**
- ▶ **1920 x 1080 resolution (Full HD)**
- ▶ **Contrast ratio: 800:1**
- ▶ **3-D comb filter and de-interlace circuitry**
- ▶ **Picture-in-Picture (PIP) and Picture-and-Picture (PAP)**
- ▶ **Internal auto switching to any input**
- ▶ **Alarm triggered switching to PIP or full screen**
- ▶ **Looping BNC outputs**
- ▶ **RGB, DVI, and HDMI inputs**
- ▶ **Removable desk stand**

The 42RTH is a 42-inch, high-resolution color monitor that is ideal for use with both digital video recorders (DVR) and PC applications. The monitor features a color liquid crystal display (LCD) flat screen panel with horizontal and vertical viewing angles of 178°, which provides comfortable, clear viewing whether you place it on a desktop or mount it to a wall. Additionally, it has been designed with a unique automatic switching capability to show the video with the highest priority.

Functions

Excellent image quality

The 42RTH monitor automatically adapts to the input resolution of the incoming video signal (up to 1920 x 1080 pixels). The monitor's analog RGB input easily accommodates the widespread use of PCs in today's security surveillance systems. Its high contrast ratio (800:1) and high brightness rating (500 cd/m²) offer

excellent color accuracy and imaging for easier viewing and interpretation of images. The panel refreshes every eight milliseconds, so you get crisp, clear images with less smearing – and less image “ghosting” in fast-motion video. Additionally, it has been designed for security applications and improves the functioning of any security equipment by using alarms to switch and display priority video.

Key benefits of LCD monitors

Long-life fluorescent backlights help avoid luminance degradation on the LCD monitor – so it easily maintains its high brightness level over time. The High Definition LCD panel allows the user to see video details at a level impossible on CRT monitors. The high brightness and resolution allow viewing with reduced eyestrain and fatigue.

Additional advantages

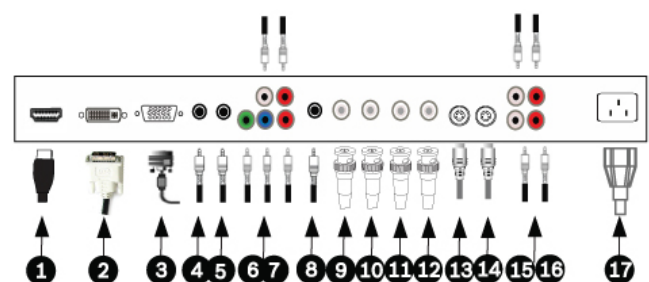
The 42RTH also features:

- Low power consumption.
- Automatic adaptation to fluctuating electricity loads while protecting your circuitry.
- Standard 130 mm mounting holes to easily accommodate a range of wall mounts.
- User-friendly, on-screen menus and front panel controls for adjusting monitor display parameters to your specific preferences.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards

Installation/Configuration Notes



Port/Connector	Port/Connector
1 HDMI In	10 AV 1 Out (BNC)
2 DVI In	11 AV 2 In (Video 2 BNC)
3 RGB In	12 AV 2 Out (BNC)
4 PC Stereo In	13 S-video In
5 Audio Out	14 S-video Out
6 Component Y, Pb, Pr In	15 AV 2 Audio L/R In
7 Component Audio L/R In	16 AV 1, S-video Audio L/R In
8 Trigger Input (mini-stereo plug)	17 AC Power In
9 AV 1 In (Video 1 BNC)	

Technical Specifications

Electrical

Rated Voltage	100 to 230 VAC, 50/60 Hz
Voltage Range	90 to 264 VAC, 50/60Hz
Power at Rated Voltage	260 W operation 14 W standby
LCD Panel	Active Matrix TFT LCD
Screen Size (H x V)	930.3 x 523 mm (36.6 x 20.6 in.)
Viewable Picture Area	42 in. (106.7 cm) measured diagonally
Pixel Pitch (H x V)	0.4845 x 0.4845 mm (0.019 x 0.019 in.)
Resolution	1920 x 1080 pixels
Aspect Ratio	16:9
Display Colors	8-bit interface; 16.7 million colors
Response Time	< 8 ms (G to G)
Backlight	Eighteen (18) cold cathode fluorescent tubes, rated life 50,000 hours

Optical Characteristics

Luminance	500 cd/m ² , anti-glare, hard-coating (3H) treatment
Contrast Ratio (CR)	800:1
Viewing Angle	178° horizontal, 178° vertical

Input Signal

Video	Two (2) inputs: 1.0 Vp-p (0.5–1.5 Vp-p), automatic switching from 75Ω unbalanced termination to Hi-Z with passive loop-through operation
S-Video	0.7 Vp-p (Y-signal), 0.3 Vp-p (C-signal), 75Ω termination
Component	Y, Pb, Pr, Sound L/R
Digital Inputs	DVI D and HDMI
Analog Input	RGB
Audio Output	Speakers: two (2), 7 W

Controls

Front Panel	Push-buttons
Source	Selects input
Menu	Selects on-screen display (OSD) up cursor, down cursor/auto adjust, left cursor, right cursor
Power	On/Off

On-Screen Display

RGB	Custom, Picture/Sound, PIP, and Setup menus
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Indicators

LED	Power On (green) Standby/Suspend/Active Off (flashing red) Unsupported Mode (green) Power Off (red)
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HDMI/DVI/RGB Inputs

Analog RGB	0.7 Vp-p (0.5–1 Vrms)
Picture-in-Picture Picture-and-Picture	Video 1, Video 2, or S-video input may be inserted into the RGB/DVI/HDMI display

DVI/RGB Timing Modes	Resolution	V-freq (Hz)
	640 x 480	60, 72, 75
	800 x 600	60, 72, 75
	1024 x 768	60, 70, 75
	1280 x 1024	60, 75
	1366 x 768	60
	1920 x 1080	60

Component Timing	Resolution	V-freq (Hz)
	640 x 480 (480i)	60
	720 x 576 (576i)	50
	640 x 480 (480P)	60
	720 x 576 (576P)	50
	1280 x 720 (720P)	50, 60
	1920 x 1080 (1080i)	50, 60
	1920 x 1080 (1080P)	50, 60

HDMI Timing	Resolution	V-freq (Hz)
	640 x 480 (480P)	60
	720 x 576 (576P)	50
	1280 x 720 (720P)	50, 60
	1920 x 1080 (1080i)	50, 60
	1920 x 1080 (1080P)	50, 60

Audio Input	1.0 V line level, stereo
Trigger Input	Normally Open (N/O) Normally Closed (N/C) High: 1.7-5 V DC Low: 0-.7 V DC
Audio Output	Loop-through line level (PC only) Speakers: two (2), 7 W

Connectors

Video	Four (4) BNC types: (2 in, 2 out)
RGB	One (1) 15-pin D-sub
Y/C (S-Video)	Two (2) (1 in, 1 out)
Component	Y, Pb, Pr
Audio	Four (4) RCA type (2 stereo inputs) One (1) PC stereo input One (1) looping output, 1/8 in. mini phono plug
DVI-D/HDMI	One (1)/ One (1)
Trigger	One (1) 3.5 mm mini phone plug or (1) 3.5 mm mini-stereo plug
Power Cord	One (1) 3-wire with a grounded plug, 1.8 m (6 ft) long (European/Continental or U.S. plug type)

Mechanical

Cabinet	Material: ABS Finish: black Wall mounting compatible with standard bracket, (130 mm x 130 mm) x 634 mm, M8 x 16 mm screws
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Dimensions

Monitor with Stand (W x H x D)	1063 x 730 x 304mm (41.9 x 28.7 x 12 in.)
Monitor Only (W x H x D)	1063 x 655 x 120 mm (41.9 x 25.9 x 4.7 in.)
Weight	Monitor with base: 35 kg (77.2 lbs) Monitor only: 31 kg (68.3 lbs)

Environmental

Operating Temperature	10°C to 40°C (50°F to 104°F)
Storage Temperature	-20°C to 50°C (-4°F to 122°F)
Humidity	Max. 90%, non-condensing

Ordering Information

42RTH 42-inch High-performance LCD 42RTH

Monitor

42-inch color LCD monitor, 1920 x 1080 resolution, VGA, DVI, HDMI, CVBS, audio, 120/230 VAC, 50/60 HZ

Accessories

ST660 Universal Tilt Wall Mount ST660

Tilt wall mount for an LCD 32 in. to 60 in., black

Accessories for LCD Monitors



Features

- ▶ Fixed wall mount bracket for LCD monitors
- ▶ Swivel and tilt wall mount bracket for LCD monitors
- ▶ Easy to install two piece design brackets
- ▶ Universal rack mount for 15-inch, 17-inch, and 19-inch UML monitors
- ▶ Supports all LCD monitors with a VESA®-compliant pattern
- ▶ Mounts support up to 12 kg (26.5 lb) for monitors smaller than 20 inches and up to 90.71 kg (200 lb) for larger monitors
- ▶ Universal power supply compatible with up to 19-inch LCD
- ▶ Universal power supply provides 12 VDC / 5.0 A output

The Bosch series of Universal Monitor Mounts (UMM) are designed to mount any VESA®-compliant monitor to a wall or in a rack-mount cabinet, up to 12 kg (26.5 lb) in weight. The wall mounts offered in the series of Universal Monitor Mounts (UMM) are the UMM-LW-20B and the UMM-LW-30B, the rack mount is the UMM-LCDUB-RM.

The ST660 wall mount is ideal for mounting a 32-inch to a 60-inch LCD screen to a wall. The one-touch tilt feature allows adjustment of $\pm 15^\circ$ without the use of tools.

Each wall mount comes in two pieces: a VESA®-compliant mounting plate that attaches to the monitor and a V-shaped wall bracket. Once both pieces of the mount are attached, the monitor slides into the V-shaped bracket on the wall, making installation quick and easy. A set screw secures the two sections of the mount together.

The RMK-08 rack mount is ideal for mounting 15-inch, 17-inch, or 19-inch UML LCD monitors. The one-touch tilt feature allows adjustment of $\pm 35^\circ$ without the use of tools.

The UMM-LCDUB-RM is ideal for mounting 15-inch, 17-inch, or 19-inch UML LCD monitors. This mount supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet.

The Bosch Universal Power Supply (UMP) is compatible with all Bosch LCD monitors up to 19 inches, and provides 12 VDC / 5.0 A output.

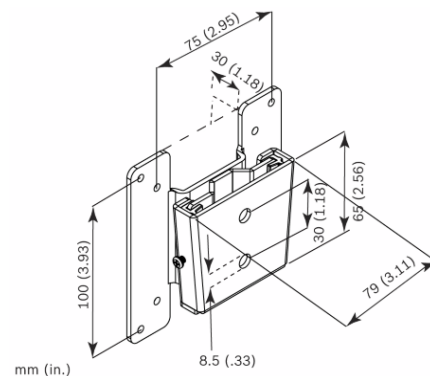
Functions

Model No.	Mount Type	Maximum Weight
UMM-LW-20B	Fixed Wall Mount Bracket	12 kg (26.5 lb)
UMM-LW-30B	Swivel/Tilt Wall Mount Bracket	12 kg (26.5 lb)
UMM-LCDUB-RM	Rack Mount	9.5 kg (20.94 lb)
ST660	Universal Tilt Wall Mount	90.71 kg (200 lb)
RMK-08	Rack Mount Bracket	9.5 kg (20.94 lb)

Technical Specifications

UMM-LW-20B Fixed Wall Mount Bracket

The UMM-LW-20B is a fixed wall mount that is designed for use with any LCD flat-screen, VESA®-compliant monitor, up to 12 kg (26.5 lb) in weight. The mount moves the monitor 1.5 cm (0.59 in.) off of the wall.



UMM-LW-20B Fixed Wall Mount

Mechanical

Fixed Wall Mount Bracket (UMM-LW-20B)

Monitor Type	LCD monitors only
Maximum Weight Capacity	12 kg (26.5 lb)
Swivel Adjustment	360°
Material	Steel
Color	Black
Dimensions	See drawing above

Fixed Wall Mount Bracket (UMM-LW-20B)

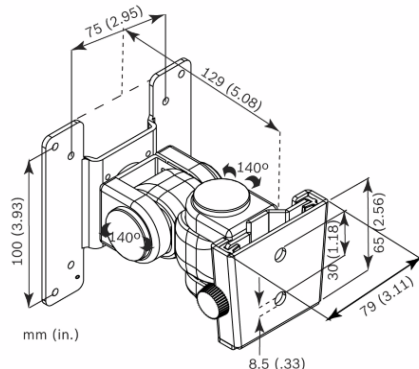
Weight	0.47 kg (1.04 lb)
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Parts Included**UMM-LW-20B Fixed Wall Mount Bracket**

1	VESA® mounting plate, fixed
1	Wall bracket
2	1/4 x 2.0 in. Wedge anchors (for concrete installations)
2	1/2 x 2.0 in. Wood screws
4	M4 x 10 mm Screws
1	Level

UMM-LW-30B Swivel/Tilt Wall Mount Bracket

The UMM-LW-30B is a swivel/tilt wall mount that is designed for use with any LCD flat-screen, VESA®-compliant monitor, up to 12 kg (26.5 lb) in weight. This mount allows you to swivel the monitor 360° to position it in either landscape or portrait view. The mount also allows you to swivel and tilt the monitor 140° ($\pm 70^\circ$) for the best viewing angle.

*UMM-LW-30B Swivel/Tilt Mount***Mechanical****Swivel/Tilt Wall Mount Bracket (UMM-LW-30B)**

Monitor Type	LCD monitors only
Maximum Weight Capacity	12 kg (26.5 lb)
Swivel Adjustment	360°
Swivel Range	140° ($\pm 70^\circ$)
Tilt Range	140° ($\pm 70^\circ$)
Material	Steel
Color	Black
Dimensions	See drawing above
Weight	0.84 kg (1.86 lb)

Parts Included**UMM-LW-30B Swivel/Tilt Wall Mount Bracket**

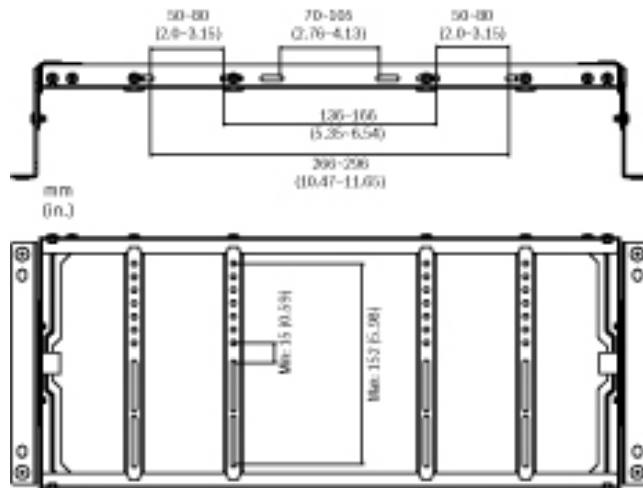
1	VESA® mounting plate with swivel/tilt arm
1	Wall bracket
2	1/4 x 2.0 in. Wedge anchors (for concrete installations)
2	1/2 x 2.0 in. Wood screws
4	M4 x 10 mm Screws

UMM-LW-30B Swivel/Tilt Wall Mount Bracket

1	5/16 in. Allen Wrench
1	Level

UMM-LCDUB-RM

The UMM-LCDUB_RM supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet.

**Mechanical****Rack Mount Bracket (UMM-LCDUB-RM)**

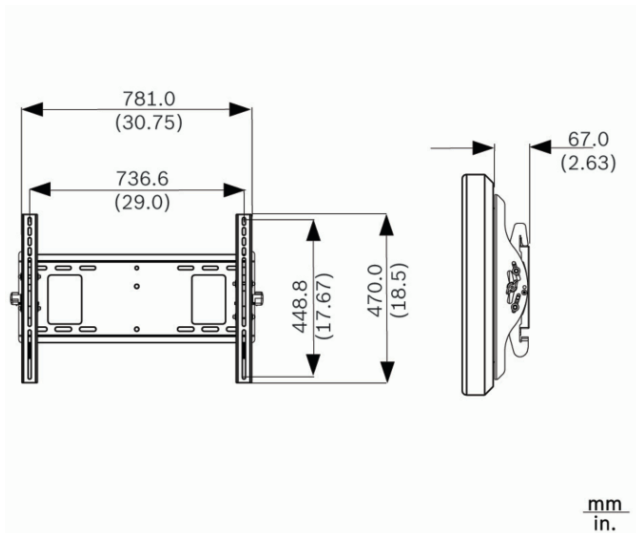
Monitor Type	Dual 8.4 in. and single 8.4 to 19 in. LCD monitors
Maximum Weight Capacity	9.5 kg (20.94 lb)
Depth Adjustable	36 to 78.5 mm (1.42 to 3.10 in.)
VESA Mount Support	75 x 75 mm or 100 x 100 mm
Tilt Range	$\pm 35^\circ$
Dimensions	See drawing above
Weight	Net weight: 1.4 kg (3.1 lbs) Gross weight: 2.0 kg (4.4 lbs)

Parts Included**UMM-LCDUB-RM Rack Mount**

1	Rack mount Bracket
2	Side Holders
2	Mounting bases for 8.4 in. and 10.4 in. monitors
16	M3 x 4, M4 x 20, M5 x 4 Phillips Screws
10	Cosmetic plates (5 sets of 2)

ST660 Universal Tilt Wall Mount

The ST660 mount includes a universal screen adapter to accommodate mounting holes spaced up to 736.6 mm (29 in.) horizontally and 448 mm (17.67 in.) vertically and up to 90.71 kg (200 lb) in weight. In addition, the universal bracket easily hooks onto the wall plate for fast installation.



ST660 Universal Tilt Wall Mount

Mechanical**Universal Tilt Wall Mount (ST660)**

Monitor Type	For 32-in. to 60-in. LCD monitors only
Maximum Weight Capacity	90.71 kg (200 lb)
Tilt Range	30° (±15°)
Mounting Surfaces	Wood stud, concrete, cinder block, and metal stud ¹
Material	Scratch-resistant fused epoxy
Color	Black
Dimensions	See drawing above
Weight	3.6 kg (8.02 lb)

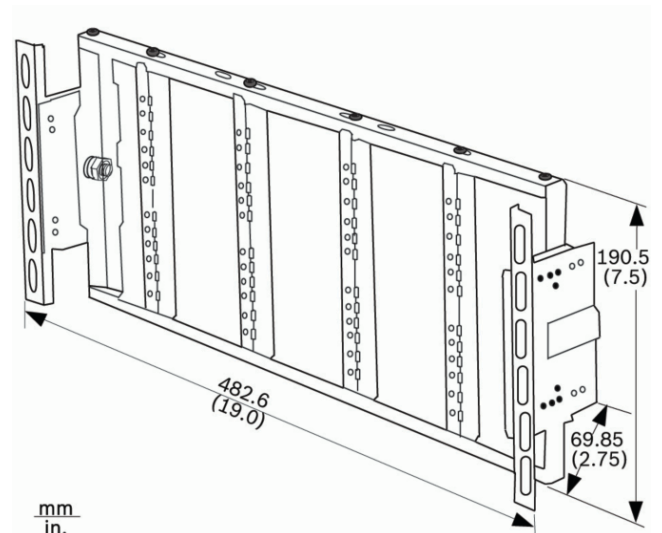
¹ Metal stud accessory required.

Parts Included**ST660 Universal Tilt Wall Mount**

- 1 Wall plate (double stud)
- 1 Left tilt bracket
- 1 Right tilt bracket
- 4 #14 x 2.5 in. Wood screws
- 4 Alligator[®] anchors
- 1 4 mm Allen Wrench

RMK-08 Rack Mount Bracket

The RMK-08 is a monitor rack mount that is designed for use with a 15-in., 17-in., or 19-in. VESA[®]-compliant UML LCD monitor in a standard 19-inch (48 cm) equipment rack, up to 9.5 kg (20.94 lb) in weight. The height varies from 7 rack units (15 in.) to 10 rack units (19 in.).



RMK-08 Rack Mount Bracket

Mechanical**Rack Mount Bracket (RMK-08)**

Monitor Type	LCD monitors only
Maximum Weight Capacity	9.5 kg (20.94 lb)
Tilt Range	±35°
Material	Steel
Color	Black
Dimensions	See drawing above
Weight	1.4 kg (3.09 lb)

Parts Included**RMK-08 Rack Mount**

- 1 Rack Mount Bracket
- 2 Rack Guide Bracket
- 10 M4 x 8 mm Phillips Screw
- 5 4 x 8 mm Phillips Screw

Ordering Information

UMM-LCDUB-RM Rack Mount Bracket for LCD Monitors Supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet	UMM-LCDUB-RM
UMM-LP-10B Pipe Mount Pipe mount with ball joint, 10-in. stem and pipe coupling, black	UMM-LP10B
UMM-LW-10B Flange/Wall Mount Flange/wall mount with ball joint, 12-in. stem and wall flange, black	UMM-LW10B
UMM-LW-20B Fixed Wall Mount Fixed wall mount for flat panel LCD monitors, black	UMM-LW-20B
UMM-LW-30B Swivel/Tilt Wall Mount Swivel/Tilt wall mount for flat panel LCD monitors, black	UMM-LW-30B

Ordering Information

ST660 Universal Tilt Wall Mount

ST660

Tilt wall mount for an LCD 32 in. to 60 in.,
black

TC9209MM-W, MM3000, TC9217MM, TC9220MM Series Monitor Mounts



Features

- ▶ For mounting a 23 cm (9 in.) to a 53 cm (21 in.) monitor
- ▶ Wide range of sizes
- ▶ For wall and ceiling installations
- ▶ Adjustable tilt up to 30° and 360° swivel
- ▶ Top and front roll-out protection
- ▶ Sturdy construction

This series of monitor mounts provides a convenient method of mounting most monitors to ceilings and walls. Units are available for mounting 23 cm (9 in.) to 53 cm (21 in.) monitors. The trays on all units swivel and are adjustable for tilt; monitors are easily mounted to the random hole patterns on the adjustable width trays.

See the compatibility chart for the correct monitor mount for your Bosch monitor.

Functions

The **MM3000** is a ceiling mount for 23 cm (9 in.) to 30 cm (12 in.) monitors. It is designed to mount to a ceiling or flat overhead surface. Its lightweight aluminum construction offers fast and easy installation. The tray locks with an Allen wrench.

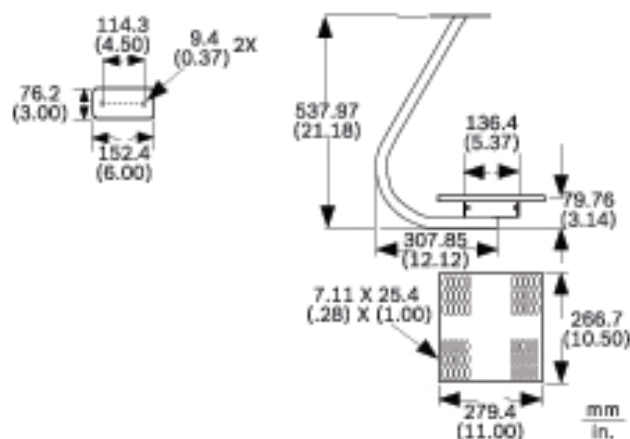
The **TC9209MM-W** is designed to mount 23 cm (9 in.) to 33 cm (13 in.) monitors to a flat wall. These units have a locking mounting tray with a key-type lock.

The **TC9200MM** series have all been redesigned to incorporate anti-roll-out brackets to provide an extra measure of safety and support to prevent a monitor from falling forward when mounted in the tilt-down position. Maximum tilt-down angle has been increased to 30°.

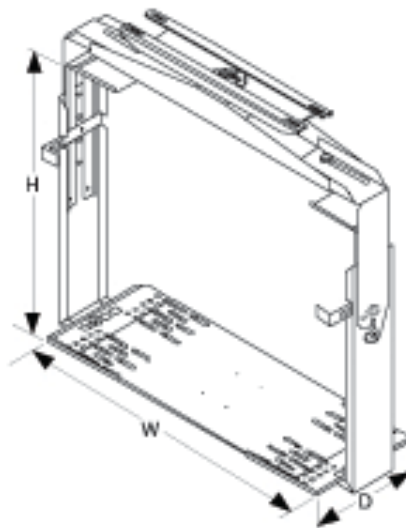
All parts are included in the **TC9200MM-C** series to mount various monitor sizes to a structural ceiling. The TC9220EC series extension columns can be used to increase clearance from the ceiling by 610 mm (2 ft) and 1219 mm (4 ft) lengths.

The **TC9200MM-W** series are used to mount monitors to a flat wall. Mounting arms are included and allow for 360° swivel of the mounted monitor.

Installation/Configuration Notes

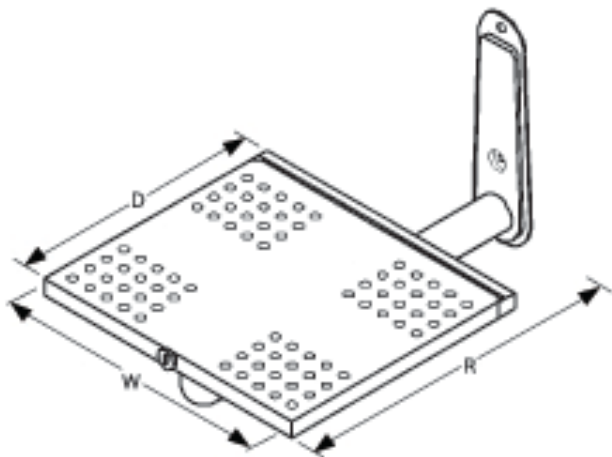


MM3000 Ceiling Mount



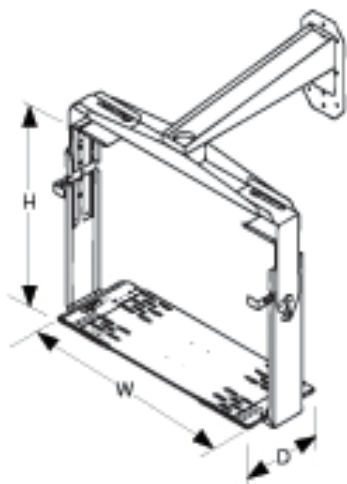
TC9217MM-C / TC9220MM-C Ceiling Mount

Model No.	Width	Height	Depth
	mm (in.)	mm (in.)	mm (in.)
TC9217MM-C	343 to 534 (13.5 to 21)	324 to 457 (12.8 to 18)	254 (10)
TC9220MM-C	457 to 660 (18 to 26)	400 to 533 (15.8 to 21)	356 (14)



TC9209MM-W Wall Mount:

Width	Depth	Reach
mm (in.)	mm (in.)	mm (in.)
267 (10.5)	292 (11.5)	368 (14.5)



TC9220MM-W Suspended Wall Mounts:

Model No.	Width	Height	Depth	Reach
	mm (in.)	mm (in.)	mm (in.)	mm (in.)
TC9220MM-W	457 to 660 (18 to 26)	400 to 533 (15.8 to 21)	356 (14)	457 (18)

Technical Specifications

MM3000

Monitor Size	23 cm (9 in.) to 30 cm (12 in.)
Maximum Load	18 kg (40 lb)
Pan	360°
Tilt	45° maximum forward
Finish	Off-white
Dimensions	See drawing ¹
Weight	3.62 kg (8 lb)

1. Dimensions are shown in inches; dimensions in parenthesis are in centimeters.

TC9217MM-C

Monitor Size	33 cm (13 in.) to 43 cm (17 in.)
Maximum Load	
Concrete Ceiling	65 kg (150 lb)
Wood Stud Ceiling	57 kg (125 lb)
Pan	360°
Tilt Range	30°
Finish	Black
Dimensions	See drawing
Weight	14.2 kg (31.3 lb)

TC9220MM-C

Monitor Size	48 cm (19 in.) to 53 cm (21 in.)
Maximum Load	
Concrete Ceiling	65 kg (150 lb)
Wood Stud Ceiling	57 kg (125 lb)
Pan	360°
Tilt Range	30°
Finish	Black
Dimensions	See drawing
Weight	16.7 kg (36.7 lb)

TC9209MM-W

Monitor Size	23 cm (9 in.) to 33 cm (13 in.)
Maximum Load	22.7 kg (50 lb)
Pan	360°
Tilt Range	0°/5°/10°
Finish	Black
Dimensions	See drawing
Weight	3.9 kg (8.5 lb)

TC9220MM-W

Monitor Size	48 cm (19 in.) to 53 cm (21 in.)
Maximum Load	
Concrete Wall	68 kg (150 lb)
Wood Stud Wall	56.7 kg (125 lb)
Pan	360°
Tilt Range	30°
Finish	Black

Dimensions	See drawing
Weight	21.3 kg (46.9 lb)

Monitor Mount Compatibility Chart

Bosch Monitor Model No.	Ceiling Mount	Wall Mount
Monochrome		
LTC 2009/51, /61	MM3000	TC9209MM-W
LTC 2012/51, /61	MM3000	TC9209MM-W
LTC 2017/50, /60	TC9217MM-C	N/A
LTC 2020/91	TC9220MM-C	TC9220MM-W
Color		
LTC 2810/91	TC9217MM-C	N/A
LTC 2813/60, /90	TC9217MM-C	N/A
LTC 2814/90	TC9217MM-C	N/A
LTC 2821/91	TC9220MM-C	TC9220MM-W
LTC 2910/50, /60, /90	MM3000	TC9209MM-W
LTC 2915/91	TC9217MM-C	N/A
LTC 2917/90, /91	TC9217MM-C	N/A
LTC 2919/90	TC9220MM-C	TC9220MM-W

Ordering Information

TC9217MM-C Monitor Mount ceiling, for LTC 2017, 2810, 2813, 2915, 2917	TC9217MM-C
TC9220MM-C Monitor Mount ceiling, for LTC 2020, 2821, 2919	TC9220MM-C
TC9209MM-W Monitor Mount wall, for LTC 2009, 2012, 2910	TC9209MM-W
TC9220MM-W Monitor Mount wall, for LTC 2020, 2821, 2919	TC9220MM-W

Fiber Optic Media Converters



Features

- Utilizes Small Form-factor Pluggable (SFP) modules
- Multi-mode and single-mode modules available
- Supports distances up to 60 km (37 miles)
- Surface mount or rack mount capability

The Bosch fiber optic Media Converter series are designed to transmit 10/100 Mbps Ethernet signals over fiber optic cable using Small Form-factor Pluggable (SFP) modules. These fiber optic media converter devices can be used to transmit Ethernet data well beyond the 100 m limit of copper-based media and provides a secure, EMI/RFI free transmission path.

The media converter units are designed to accept 10/100 Mbps SFP modules. The SFP modules are ordered separately to meet user requirements for mode type, distance and type of optical connector. Available offerings include multi-mode fiber (MMF) or single-mode fiber (SMF) models with a single SC connector or dual-fiber with an LC connector.

System Overview

VG4-SFPSCKT

The VG4-SFPSCKT is a unique media converter module for use with VG4 series AutoDomes incorporating the Ethernet (TCP/IP) Communications Module. This media converter module is designed to accept any of the 10/100 Mbps SFP modules described below.

The media converter module along with the SFP module is user installed directly into the AutoDome's power supply box to provide an integrated fiber optic solution.

CNFE2MC/IN

The CNFE2MC/IN is a media converter device designed to transmit and receive 10/100 Mbps Ethernet data over optical fiber using SFP modules. This head-end device is supplied in an enclosure that can be surface mounted or rack mounted using the optional C1-IN rack mount card cage. The unit does not require in-field adjustments, and provides automatic MDI/MDI-X crossover.

SFP Modules

The selection of Small Form-factor Pluggable (SFP) modules provides the fast Ethernet optical interface when using the VG4-SFPSCKT or the CNFE2MC/IN media converters. These interchangeable SFP modules are available for use with MMF or SMF optical fiber. The optical fiber SFP modules are available as one and two fiber versions. They also are available with LC or SC optical connectors.

The VG4-SFPSCKT and CNFE2MC/IN media converters accept the following SFP modules:

Module	Fiber Type	Optical Interface
SFP-2	MMF	Duplex LC
SFP-3	SMF	Duplex LC
SFP-23	SMF	Single SC
SFP-24	SMF	Single SC
SFP-25	MMF	Single SC
SFP26	MMF	Single SC

The SFP-23/SFP-24 modules and the SFP-25/SFP-26 modules are counterparts; if you use one in the VG4-SFPSCKT module then you must use the other in the CNFE2MC/IN head-end unit. Refer to the chart below for the acceptable combinations.

Compatibility Chart

If this SFP module is used with the VG4-SFPSCKT	Then this SFP module must be used in the CNFE2MC/IN
SFP-2	SFP-2
SFP-3	SFP-3
SFP-23	SFP-24
SFP-24	SFP-23
SFP-25	SFP-26
SFP-26	SFP-25

C1-IN Rack Mount Card Cage

The C1-IN rack mount card cage is designed to hold a maximum of 14 CNFE2MC/IN modules. The C1-IN card cage utilizes an integral, yet field replaceable universal power supply suitable for 120 VAC to 240 VAC, 50/60 Hz operation.

The C1-IN unit includes automatic self-resetting current overload protection, so a fault in any one module will not cause the entire card cage to shut down.

C1-BP Closure Panel

The C1-BP is a closure panel for the C1-IN rack mount card cage, providing coverage for one rack slot.

Installation/Configuration Notes

The Bosch Fiber Optic Media Converter solution consists of three core components and several optional components to help fit every application. To provide fiber optic communications between a Bosch VG4 AutoDome and a controller you must use the following:

- One (1) **VG4-SFPSCKT Fiber Optic Ethernet Media Converter Kit** – a printed circuit board installed inside a VG4 power supply box. (See Technical Specification Section 1)
- One (1) **CNFE2MC/IN Ethernet Fiber Optic Media Converter** – a rack-mounted or surface mounted head-end controller. (See Technical Specification Section 2)
- Two (2) **Small Form-factor Pluggable (SFP) modules** – one module is installed in the VG4-SFPSCKT, the other is installed in the CNFE2MC/IN. (See Technical Specification Section 3)

Optionally, you can use the following modules to customize your installation:

- **C1-IN Rack Mount Card Cage** (See Technical Specification Section 4)
- **C1-BP Closure Panel**

Technical Specifications

Section 1: VG4-SFPSCKT Fiber Optic Ethernet Media Converter Kit

Description	Fiber Optic Ethernet Media Converter kit. Requires a small form-factor pluggable (SFP) module (sold separately).
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port Full Duplex Optical Port
Compatible Receiver	CNFE2MC/IN
Installation	Installed inside a VG4-A-PA1, VG4-A-PA2, VG4-A-PSU1 or a VG4-A-PSU2 power supply box with supplied mounting hardware

LED Indicators

Power/Link (on circuit board)

• Green	Power is applied, fiber link is valid
• Red	Power is applied, fiber link is missing
• Green/Flashing Red, rapid	Power is applied Fiber link is valid Data is present and video is streaming from the VG4 AutoDome to a network connection
• Green/Flashing Red, slow	Power is applied Fiber link is valid Data is present Video is not streaming from the VG4 AutoDome, or the RJ45 connection to the AutoDome is not valid

RJ-45 Connector

• Right side, Flashing Green	Data is present
• Right side, Off	No data is present
• Left side, Amber	Link is valid at 100 MB
• Left side, Off	If the right side is flashing green, link is valid at 10 MB
• No LED lit	Missing the network cable, defective network cable or the other end of the network cable is not connected

Electrical

Power	24 VAC @ 220 mA (supplied by the VG4 AutoDome)
Current Protection	Automatic resettable Solid-state current limiters
Circuit Board	Meets IPC Standard

Mechanical

Dimensions (LxWxH)	7.4 x 7.1 x 3.8 cm (2.9 x 2.8 x 1.5 in.)
Shipping Weight	0.91 kg (2 lb)

Environmental

MTBF	> 100,000 hours
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Section 2: CNFE2MC/IN Ethernet Fiber Optic Media Converter

Description	Fiber Optic Ethernet Media Converter kit. Requires a small form-factor pluggable (SFP) module (sold separately).
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant Full Duplex or Half Duplex Electrical Port Full Duplex Optical Port
Installation	Surface mount or rack mount using C1-IN rack (sold separately)

Connectors

Power	Terminal block
Electrical	RJ-45 (10/100 BASE-T/TX)
Socket	SFP (10/100 BASE-FX)

LED Indicators

Link/Act

• Green	Indicates a good fiber connection
• Flashing Green	Indicates data is present on at least one side of the IP connection
• No LED lit	Indicates a loss of fiber connection

Power

• Green	Power is supplied
• No LED lit	None: no power supplied

RJ-45 Connector

• Right side, Flashing Green	Data is present
• Right side, Off	No data is present
• Left side, Amber	Link is valid at 100 MB
• Left side, Off	If the right side is flashing green, link is valid at 10 MB

Electrical	
Power	
• Supplied Power Pack	Input: 90–264 VAC, 50/60 Hz Output: 9 VDC @ 1 A
• Module:	8-15 VDC @ 220 mA
Current Protection	Automatic resettable Solid-state current limiters
Circuit Board	Meets IPC Standard

Mechanical	
Dimensions (LxWxH)	16.0 x 13.0 x 2.8 cm (6.3 x 5.1 x 1.1 in.)
Shipping Weight	0.91 kg (2 lb)

Environmental	
MTBF	> 100,000 hours
Operating Temperature	–40° C to +75° C (–40°F to +167°F)
Storage Temperature	–40° C to +85° C (–40°F to +185°F)
Relative Humidity	0% to 95% (non-condensing)
Regulatory Compliance	CE, cUL, UL, RoHS

Section 3: SFP Modules

Description	Interchangeable modules available for use with MMF or SMF optical fiber.
Data Interface	Ethernet
Data Rate	10/100 Mbps IEEE 802.3 Compliant

Mechanical	
Dimensions (LxWxH)	
• SFP-2 and SFP-3	55.5 x 13.5 x 8.5 mm (2.2 x 0.5 x 0.3 in.)
• SFP-23, SFP-24, SFP-25, SFP-26	63.8 x 13.5 x 8.5 mm (2.5 x 0.5 x 0.3 in.)
Weight (all SFP modules)	0.23 kg (.05 lb)

	Type	Connector	Wavelength (transmit/receive)	Max. Distance
SFP-2	MMF	Duplex LC	1310 nm / 1310 nm	2 km (1.2 miles)
SFP-3	SMF	Duplex LC	1310 nm / 1310 nm	20 km (12.4 miles)
SFP-23	SMF	Single SC	1310 nm / 1550 nm	60 km (37.3 miles)
SFP-24	SMF	Single SC	1550 nm / 1310 nm	60 km (37.3 miles)
SFP-25	MMF	Single SC	1310 nm / 1550 nm	2 km (1.2 miles)
SFP-26	MMF	Single SC	1550 nm / 1310 nm	2 km (1.2 miles)

Fiber Compatibility

Optical Fiber Compatibility, MMF	60/125 µm MMF. For 50/125 µm fiber, subtract 4 dB from the specified optical budget value. Must meet or exceed fiber standard ITU-T G.651.
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Optical Fiber Compatibility, SMF	8–10/125 µm SMF. Must meet or exceed fiber standard ITU-T G.652.
Optical Distance Specifications	Specified transmission distances are limited to the optical loss of the fiber and any additional loss introduced by connectors, splices, and patch panels. The modules are designed to operate over the entire optical loss budget range, so they do not require a minimum loss in order to operate.

Section 4: C1-IN Rack Mount Card Cage

Description	Rack mount card cage designed to hold a maximum of 14 CNFE2MC/IN modules
-------------	--

LED Indicators

Power	
• Red	Power is supplied
• No LED lit	No power

Electrical

Input Voltage	90–264 VAC at 1 A maximum
Output Voltage	9 VDC ± 5% at 6.5 A at 75°C (167°F)
Fusing	1.25 A slow blow (rack power supply) (plug-in modules individually electronically fused)
Power Indicator	Red LED
AC Line Cord	Detachable, IEC-connected. US, European, and UK power cords supplied.

Mechanical

Dimensions (LxWxH)	48 x 19 x 15 cm (19.0 x 7.5 x 6.0 in.)
Rack Slots	Fourteen (14) 1-in. slots available
Shipping Weight	3.4 kg (7.5 lb)

Environmental

MTBF	>100,000 hours
Operating Temperature	–40° C to +75° C (–40°F to +167°F), ambient
Storage Temperature	–40° C to +85° C, (–40°F to +185°F), ambient
Heat Generation	240 BTU
Regulatory Compliance	FCC part 15, CE, cUL, UL, RoHS

Ordering Information

CNFE2MC/IN Rack-mounted Ethernet Fiber Optic Media Converter	CNFE2MC/IN
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Two-port 10/100 Mbps Ethernet Media Converter, 120/230 VAC

SFP-2 Small Form-factor Pluggable Optical Interface	SFP-2
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SFP Fiber Optic Module, Multi-mode,
1310 nm, 2 km (1.2 miles), 2 LC connectors

SFP-3 Small Form-factor Pluggable Optical Interface	SFP-3
--	--------------

SFP Fiber Optic Module, Single-mode,
1310 nm, 20 km (12.4 miles), 2 LC connectors

SFP-23 Small Form-factor Pluggable Optical Interface	SFP-23
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SFP Fiber Optic Module, Single-mode,
1310/1550 nm, 60 km (37.3 miles), 1 SC
connector

SFP-24 Small Form-factor Pluggable Optical Interface	SFP-24
---	---------------

SFP Fiber Optic Module, Single-mode,
1550/1310 nm, 60 km (37.3 miles), 1 SC
connector

SFP-25 Small Form-factor Pluggable Optical Interface	SFP-25
---	---------------

SFP Fiber Optic Module, Multi-mode,
1310/1550 nm, 2 km (1.2 miles), 1 SC connector

SFP-26 Small Form-factor Pluggable Optical Interface	SFP-26
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SFP Fiber Optic Module, Multi-mode,
1550/1310 nm, 2 km (1.2 miles), 1 SC connector

Accessories

C1-IN Rack Mount Card Cage for CNFE2MC	C1-IN
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EIA 19-in. rack for CNFE2MC, 120-230 VAC

C1-BP Blank Panel for C1 Rack	C1-BP
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Blank panel for C1 rack mount card cage, 1
slot width (1 in.)

LTC 44xx, 46xx, and LTC 47xx Series Fiber Optics



Features

- ▶ **Video and data models available**
- ▶ **No adjustments required**
- ▶ **Long distance—high security**
- ▶ **Surface-mount or rack-mount units**
- ▶ **Video models support NTSC, PAL, and SECAM standards**
- ▶ **Data communication link supports keyboards used with:**

The LTC 4600 Series are transmission systems that provide efficient, high quality video and data transmission via a multimode fiber optic cable for improved CCTV system performance. Signals are immune to ground loops, radio frequency interference (RFI), electromagnetic interference (EMI), and cross talk because the video carrier is infrared light and is transmitted through a nonconductive fiber optic cable. Interference-free operation ensures reliable service. Unlike microwave, wire, and coaxial cable transmission systems, fiber optic transmission is difficult, if not impossible to tap. And, since fiber optic cable is nonconductive and does not radiate a signal, it is difficult to detect and locate. These compact devices are available in a surface mount enclosure or in a modular style package that can be rack-mounted using an optional EIA 48 cm (19 in.) compatible rack unit.

Model Summary

Model No.	Description/Use
LTC 4641, LTC 4642 Series	Single-channel Video Transmissions
LTC 4744, LTC 4745 Series	4-Channel Video Transmissions
LTC 4630, LTC 4631 Series	Bilinx™ Video/Data Transmissions
LTC 4628, LTC 4629 Series	Video/Bi-Phase Data Transmissions
LTC 4671 Series	RS-485 Allegiant/ Divar/System4 Keyboard Data Transmissions
LTC 4651 Series	RS-232/ Bi-Phase Data Transmissions
LTC 4637 Series	Card Cage Enclosure for Rack-mount Models

LTC 4641 and LTC 4642 Series

The LTC 4641 Series Transmitters and LTC 4642 Series Receivers are designed for transmission of CCTV video signals. Efficient installation is assured because there are no user adjustments required. The wide bandwidth transmission capability of these units enables clear, sharp black and white or color pictures to be transmitted over long distances. The compact transmitters are small enough to be connected directly to a camera's BNC connector, thereby simplifying installation.

LTC 4744 and LTC 4745 Series

The LTC 4744 Transmitter and LTC 4745 Receiver are designed for the transmission of up to 4 CCTV video signals using one multimode fiber cable. This link operates in the 1310 nm range and incorporates 8-bit video encoding exceeding the requirements of EIA RS-250C for Medium Haul video transmissions. Integral LED status indicators provide an indication of operating parameters.

LTC 4630 and LTC 4631 Series

The LTC 4630 and LTC 4631 are a bidirectional transmission system designed to operate with Bilinx-compatible video/data CCTV products using a single multimode optical fiber cable. This system independently transmits a video signal from the camera location to the controller location, while simultaneously transmitting Bilinx control/event data in both directions. The video channel is compatible with both NTSC and PAL color cameras. The data channel is compatible with all Bilinx-compatible control systems and cameras. Both units incorporate LED indicators to provide quick visual indication of the module performance.

LTC 4628 and LTC 4629 Series

The LTC 4628 and LTC 4629 are a bidirectional transmission system designed to implement a complete CCTV system using a single optical fiber cable. This system independently transmits a video signal from the camera location to the controller location, while simultaneously transmitting Allegiant Bi-Phase control code from the controller location to the camera location. The video channel is compatible with monochrome or color cameras. The data channel is compatible with control systems that utilize simplex RS-232 or RS-422 signals. Both units incorporate LED indicators to provide quick visual indication of the module performance. The

LTC 4629 Transceiver Series is also compatible with the ENV Series of Bosch AutoDome® Cameras that incorporate an integral fiber optic transceiver.

LTC 4671 Series

The LTC 4671 Series are Transceivers designed especially for the transmission of RS-485 signals used by system keyboards in the Allegiant Series of switcher/controller systems, the Divar Series of digital video recorders, and the System4 Series of multiplexers. The unit contains both a transmitter and a receiver operating in the 850 nm range to allow bidirectional communication using two fibers between the main control site and its remote keyboard.

LTC 4651 Series

The LTC 4651 Transceivers are designed especially for the transmission of Bi-Phase control code signals used in the Allegiant Series of switcher/controllers, various DVRs, multiplexers, and other camera control systems. They are also compatible with Manchester code and standard RS-232 signals. These units operate in the 850 nm range and contain a removable screw terminal type connector that allows easy connection to the shielded twisted pair cable carrying the control signal. These units can also be used as an RS-232C transceiver that is compatible with EIA Standard RS-232C levels. The system is suitable for simplex asynchronous data transmissions using one fiber, or full duplex asynchronous data transmissions using two fibers up to 64 kbaud.

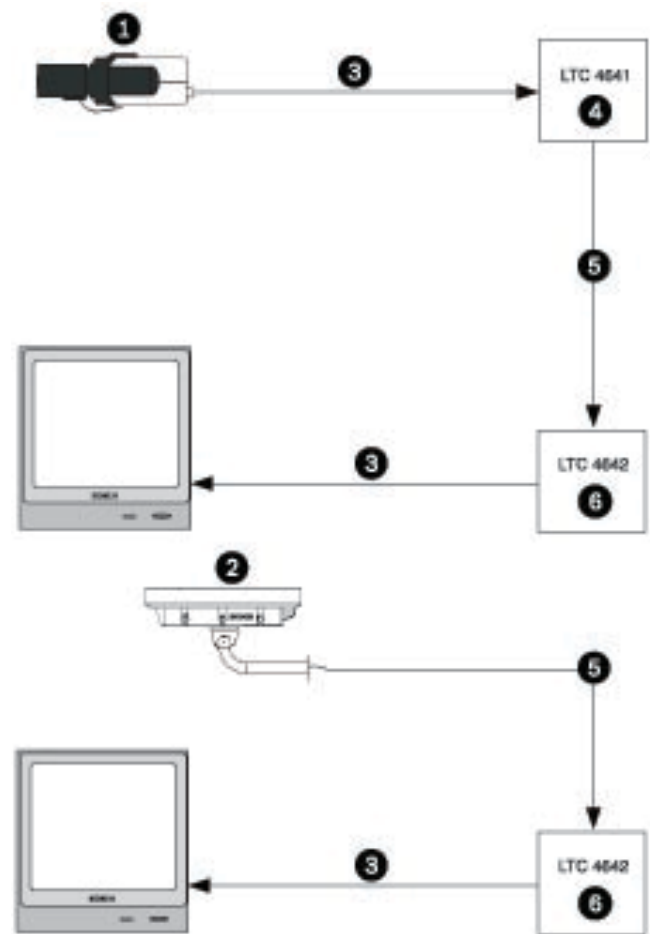
LTC 4637 Series Rack

The LTC 4637 Series Rack Units provide the option to rack-mount LTC 4600 Series Fiber Optic Modules in a standard EIA 48 cm (19 in.) rack. The unit incorporates an integral power supply that supplies power to all modules installed in the rack-mount unit. The supply also utilizes a standard IEC AC power connector for easy power cord replacement or exchange with various worldwide AC power plug configurations. Modules installed in the rackmount unit can be hot-swapped, so it is not necessary to power down the rack when removing or replacing modules. The integral power supply incorporates an automatic electronic current limiting feature for each individual rack-mount slot. This design eliminates the possibility of a single-point failure causing a complete shut down of the entire rack. The current limiting function is also self-resetting, should the fault or overload be of a temporary or intermittent nature.

Certifications and Approvals

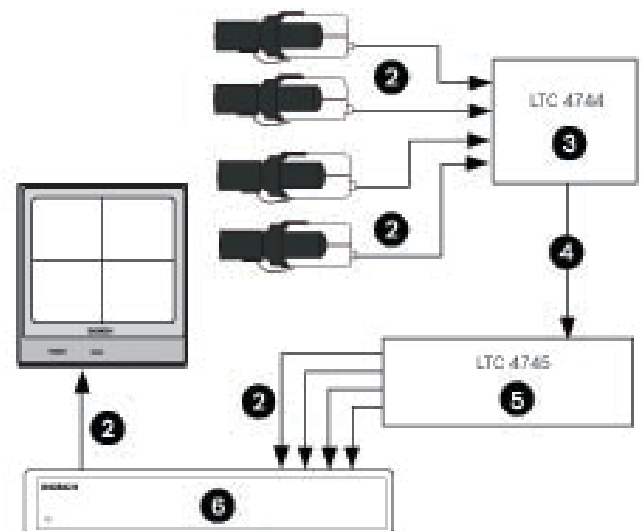
Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards
Laser Diode Models	Comply with FDA performance Standard for Laser Products, Title 21; Code of Federal Regulations Subchapter J

Installation/Configuration Notes



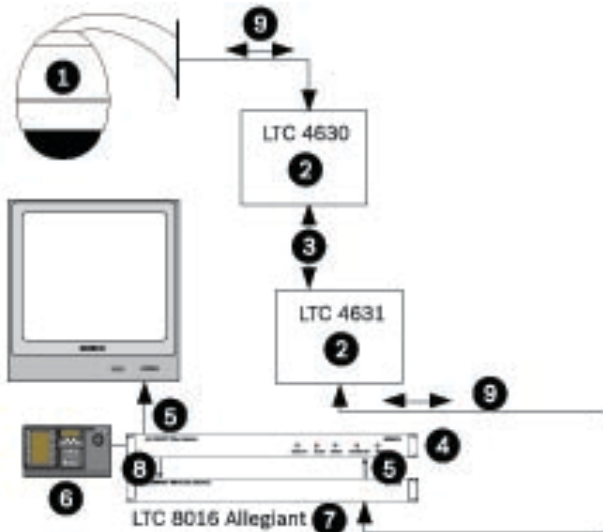
LTC 4641 and LTC 4642 Series Configuration

- 1 Camera
- 2 Coax Cable
- 3 Fiber Optic Video Transmitter
- 4 Fiber Optic Cable: Up to 4 km (2.5 miles) using 62.5/125 micron
- 5 Fiber Optic Video Receiver



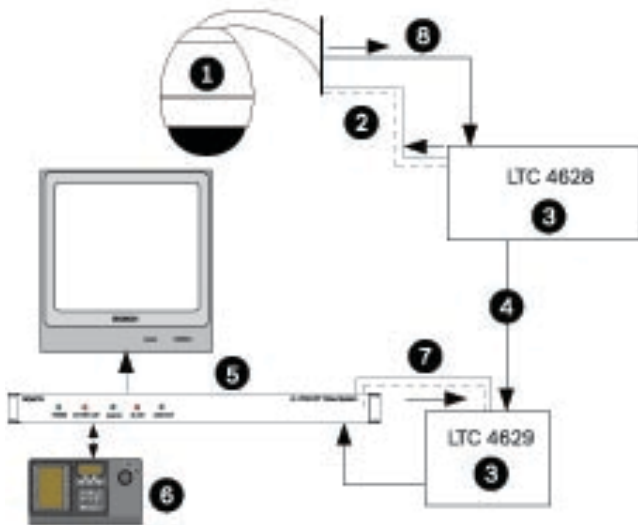
LTC 4744 and LTC 4745 Series Configuration

- 1 Camera
- 2 Coax Cable
- 3 Fiber Optic Video Transmitter
- 4 Fiber Optic Cable: Up to 3 km (1.9 miles) using 62.5/125 micron Multimode Fiber Optic Cable
- 5 Fiber Optic Video Receiver
- 6 Video Quad Unit



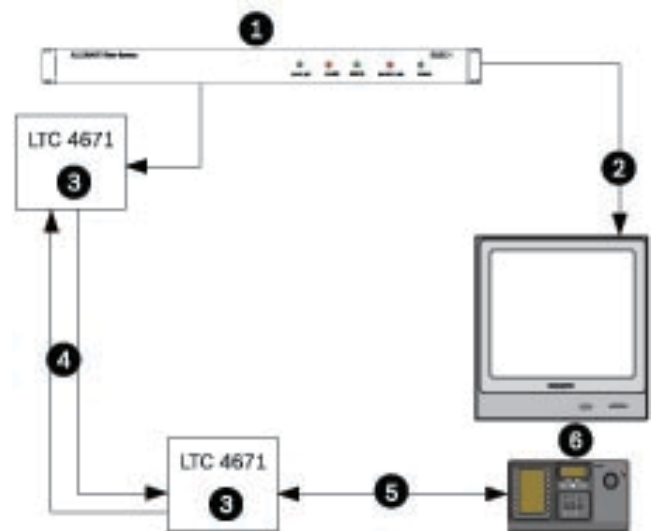
LTC 4630 and LTC 4631 Series Configuration

- 1 Bilinx-enabled AutoDome Series Pan/Tilt/Zoom Camera
- 2 Fiber Optic Transceiver
- 3 Fiber Optic Cable: Up to 600 m (2000 ft) using 62.5/125 micron Multimode Fiber Optic Cable
- 4 Allegiant Series Switcher/Controller, Divar Digital Video Recorder, or other Bosch Security Systems Control System
- 5 Video
- 6 IntuiKey Series Keyboard
- 7 Bilinx Data Interface
- 8 Data
- 9 Video + Bilinx Data



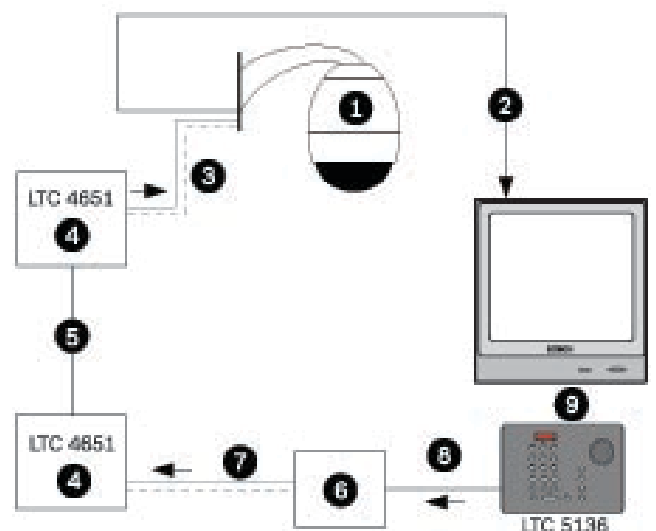
LTC 4628 and LTC 4629 Series Configuration

- 1 AutoDome Series Pan/Tilt/Zoom Camera
- 2 Bi-Phase Control Data Cable
- 3 Fiber Optic Transceiver
- 4 Fiber Optic Cable: Up to 4 km (2.5 miles) using 62.5/125 micron Multimode Fiber Optic Cable
- 5 Allegiant Series Switcher/Controller, Divar Digital Video Recorder, or System4 Series Multiplexer
- 6 IntuiKey Series Keyboard
- 7 Bi-Phase Control Data Cable
- 8 Video



LTC 4671 Series Configuration

- 1 Allegiant Series Switcher/Controller, Divar Digital Video Recorder, or System4 Series Multiplexer
- 2 Separate Video Signal Transmission Link
- 3 Fiber Optic Data Transceiver
- 4 Up to 4 km (2.5 miles) using 62.5/125 micron Multimode Fiber Optic Cables
- 5 Keyboard Data
- 6 IntuiKey Series Keyboard
- 7 Video



LTC 4651 Series Configuration

- 1 AutoDome Series Pan/Tilt/Zoom Camera
- 2 Separate Video Signal Transmission Link
- 3 Bi-Phase Control Data Cable
- 4 Fiber Optic Data transceiver
- 5 Up to 3.5 km (2 miles) using 62.5/125 micron Multimode Fiber Optic Cable
- 6 Controller Junction Box
- 7 Bi-Phase Control Data Cable
- 8 Data
- 9 Controller
- 10 Video

Technical Specifications

LTC 4641 and LTC 4642 Series

Models No.	Description	Power Source ¹	Requires
LTC 4641/60	Mini Video Transmitter	120 VAC, 50/60 Hz	LTC 4642 Series Receiver
LTC 4641/50	Mini Video Transmitter	230 VAC, 50/60 Hz	LTC 4642 Series Receiver
LTC 4642/60	Video Receiver	120 VAC, 50/60 Hz	LTC 4641 Series Transmitter
LTC 4642/50	Video Receiver	230 VAC, 50/60 Hz	LTC 4641 Series Transmitter
LTC 4642/00	Video Receiver, Rack Module	LTC 4637 Rack	LTC 4641 Series Transmitter

1. Appropriate external power pack supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

Power Requirements (surface-mount versions only)

Transmitter	9–12 VDC @ 150 mA; 10–14 VAC @ 200 mA
Receiver	12 VDC @ 150 mA
Number of Fibers	One (1)
Optical Budget	14 dB
Maximum Distance	4 km (2.5 miles)
Wavelength	850 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (–16 dBm)
Technology Type	AM modulation, with AGC
Rack Slots Required when used with LTC 4637 Rack	One (1), (rack-mount version only)

Dimensions (surface-mount version)

Transmitter (L x W x H)	6.4 x 4.1 x 2.5 cm (2.5 x 1.6 x 1.0 in.)
Receiver (L x W x H)	10.7 x 8.9 x 2.5 cm (4.2 x 3.5 x 1.0 in.)
Video Bandwidth	5 Hz to 10 MHz
Differential Gain	< 5%
Differential Phase	< 5°
Tilt	< 1%

Models No.	Description	Power Source ¹	Requires
	Signal-to-Noise Ratio (SNR)	> 55 dB @ 10 dB attenuation > 60 dB @ 7 dB attenuation	
	Shipping Weight	< 0.9 kg (2 lb)	
	MTBF	> 100,000 hours	

LTC 4744 and LTC 4745 Series

Models No.	Description	Power Source ²	Requires
LTC 4744/60	4-ch. Video Transmitter	120 VAC, 50/60 Hz	LTC 4745 Series Receiver
LTC 4744/50	4-ch. Video Transmitter	230 VAC, 50/60 Hz	LTC 4745 Series Receiver
LTC 4744/00	4-ch. Video Transmitter Rack Module	LTC 4637 Rack	LTC 4745 Series Receiver
LTC 4745/60	4-ch. Video Receiver	120 VAC, 50/60 Hz	LTC 4744 Series Transmitter
LTC 4745/50	4-ch. Video Receiver	230 VAC, 50/60 Hz	LTC 4744 Series Transmitter
LTC 4745/00	4-ch. Video Receiver Rack Module	LTC 4637 Rack	LTC 4744 Series Transmitter

2. Appropriate external power packs supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

Power Requirements (surface-mount versions only)	+12 VDC @ 500 mA
Number of Fibers	One (1)
Optical Budget	17 dB
Maximum Distance	3 km (1.9 miles)
Wavelength	1310 nm
Optical Emitter	Laser diode
Technology Type	8-Bit digital video encoding
Rack Slots Required when used with LTC 4637 Rack	Two (2), rack-mount version only

Dimensions (surface-mount versions)

Transmitter (L x W x H)	17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)
Receiver (L x W x H)	17.8 x 12.5 x 5.0 cm (7.0 x 4.9 x 2.0 in.)
Video Bandwidth	10 Hz to 6.5 MHz
Differential Gain	< 2%
Differential Phase	< 0.7°
Tilt	< 1%
Signal-to-Noise Ratio (SNR)	60 dB @ maximum optical loss budget
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

LTC 4630 and LTC 4631 Series

Models No.	Description	Power Source ³	Requires
LTC 4630/60	Video Transmitter/ Data Transceiver	120 VAC, 50/60 Hz	LTC 4631 Series
LTC 4630/50	Video Transmitter/ Data Transceiver	230 VAC, 50/60 Hz	LTC 4631 Series
LTC 4630/00	Video Transmitter/ Data Transceiver Rack Module	LTC 4637 Rack	LTC 4631 Series
LTC 4631/60	Video Receiver/ Data Transceiver	120 VAC, 50/60 Hz	LTC 4630 Series
LTC 4631/50	Video Receiver/ Data Transceiver	230 VAC, 50/60 Hz	LTC 4630 Series
LTC 4631/00	Video Receiver/ Data Transceiver Rack Module	LTC 4637 Rack	LTC 4630 Series

3. Appropriate external power packs supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

Power Requirements (surface-mount versions only)

LTC 4630	24 VAC C.T., 11–14 VDC @ 200 mA
LTC 4631	12 VDC @ 200 mA
Number of Fibers	One (1)
Optical Budget	14 dB
Maximum Distance for Bilinx Transmissions	600 m (2000 ft)
Technology Type	AM video modulation
Wavelength	850 nm / 1310 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (-16 dBm)
Rack Slots Required when used with LTC 4637 Rack	One (1), rack-mount version only
Dimensions (surface-mount versions) (L x W x H)	17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)
Video Bandwidth	5 Hz to 10 MHz
Differential Gain	< 5%
Differential Phase	< 5°
Tilt	< 1%
Signal-to-Noise Ratio (SNR)	> 55 dB @ 10 dB attenuation
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

LTC 4628 and LTC 4629 Series

Models No.	Description	Power Source ⁴	Requires
LTC 4628/60	Video/Data Transceiver	120 VAC, 50/60 Hz	LTC 4629 Series Transceiver
LTC 4628/50	Video/Data Transceiver	230 VAC, 50/60 Hz	LTC 4629 Series Transceiver
LTC 4628/00	Video/Data Transceiver Rack Module	LTC 4637 Rack	LTC 4629 Series Transceiver
LTC 4629/60	Data/Video Transceiver	120 VAC, 50/60 Hz	LTC 4628 Series Transceiver

Models No.	Description	Power Source ⁴	Requires
LTC 4629/50	Data/Video Transceiver	230 VAC, 50/60 Hz	LTC 4628 Series Transceiver
LTC 4629/00	Data/Video Transceiver Rack Module	LTC 4637 Rack	LTC 4628 Series Transceiver

4. Appropriate external power packs supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

Power Requirements (surface-mount versions only)

LTC 4628	24 VAC C.T., 11–14 VDC @ 200 mA
LTC 4629	12 VDC @ 200 mA
Number of Fibers	One (1)
Optical Budget	14 dB
Maximum Distance	4.0 km (2.5 miles)
Technology Type	AM Video modulation
Wavelength	850 nm / 1310 nm
Optical Emitter	LED
Transmitter Output Power	25 uW (-16 dBm)
Rack Slots Required (when used with LTC 4637 Rack)	One (1), rack-mount version only
Dimensions (surface-mount versions) (L x W x H)	17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)
Video Bandwidth	5 Hz to 10 MHz
Differential Gain	< 5%
Differential Phase	< 5°
Tilt	< 1%
Signal-to-Noise Ratio (SNR)	> 55 dB @ 10 dB attenuation > 60 dB @ 7 dB attenuation
Data Rate	DC to 100 kbps (NRZ)
Shipping Weight	< 0.9 kg (2 lb)
MTBF	> 100,000 hours

LTC 4671 Series

Models No.	Description	Power Source ⁵	Requires
LTC 4671/60	RS-485 Transceiver	120 VAC, 50/60 Hz	LTC 4671 Series Transceiver
LTC 4671/50	RS-485 Transceiver	230 VAC, 50/60 Hz	LTC 4671 Series Transceiver
LTC 4671/00	RS-485 Transceiver Rack Module	LTC 4637 Rack	LTC 4671 Series Transceiver

5. Appropriate external power packs supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

Power Requirements (surface-mount versions only)	12 VDC @ 200 mA
Number of Fibers	Two (2)
Optical Budget	14 dB
Maximum Distance	4.0 km (2.5 miles)
Wavelength	850 nm
Optical Emitter	LED

Models No.	Description	Power Source ⁵	Requires
Transmitter Output Power		25 uW (–16 dBm)	
Rack Slots Required (when used with LTC 4637 Rack)		One (1), rack-mount version only	
Dimensions (surface-mount versions) (L x W x H)		17.8 x 12.5 x 2.5 cm (7.0 x 4.9 x 1.0 in.)	
Data Rate		DC to 150 kbps	
Shipping Weight		< 0.9 kg (2 lb)	
MTBF		> 100,000 hours	

LTC 4651 Series

Models No.	Description	Power Source ⁶	Requires
LTC 4651/60	Biphase/RS-232 Transceiver	120 VAC, 50/60 Hz	LTC 4651 Series Transceiver
LTC 4651/50	Biphase/RS-232 Transceiver	230 VAC, 50/60 Hz	LTC 4651 Series Transceiver
LTC 4651/00	Biphase/RS-232 Transceiver, Rack Module	LTC 4637 Rack	LTC 4651 Series Transceiver

6. Appropriate external power packs supplied with surface-mount models or power provided by LTC 4637 rack unit for rack-mount models.

Power Requirements (surface-mount versions only)		12 VDC @ 150 mA	
Number of Fibers		One (1) for Bi-Phase and simplex RS-232 transmissions; Two (2) for duplex RS-232 transmissions	
Optical Budget		14 dB	
Maximum Distance		3.5 km (2 miles)	
Wavelength		850 nm	
Optical Emitter		LED	
Transmitter Output Power		25 uW (–16 dBm)	
Rack Slots Required (when used with LTC 4637 Rack)		One (1), rack-mount version only	
Dimensions (surface-mount versions) (L x W x H)		10.7 x 8.9 x 2.5 cm (4.2 x 3.5 x 1.0 in.)	
Data Rate		DC to 1.5 Mbps (NRZ)	
Shipping Weight		< 0.9 kg (2 lb)	
MTBF		> 100,000 hours	

LTC 4637 Series Rack

Models No.	Input Voltage	Voltage Range	Output Voltage	Max Power ⁸
LTC 4637/60	120 VAC, 50/60 Hz	108 to 132	20 VAC	80 W
LTC 4637/50	230 VAC, 50/60 Hz	198 to 264	20 VAC	80 W

8. Maximum power dissipation (fully loaded).

Construction	Modular style aluminum enclosure, with detachable IEC type AC power connector			
Number of Slots	14			
Indicators	Power supply pilot lamp			
Power Supplied to Modules	20 VAC, Center tapped @ 4.0 A			

Models No.	Input Voltage	Voltage Range	Output Voltage	Max Power ⁸
Fusing		One (1) slow-blow for rack power supply; modules individually electronically fused		
Connectors		AC line cord; 3-terminal adaptor sockets, per slot		
Dimensions (L x W x H)		48.3 x 17.8 x 13.3 cm (19.0 x 7.0 x 5.25 in.)		
Shipping Weight		< 2.15 kg (< 5 lb)		

Common Specifications

NOTE: Specifications noted below apply to all models unless otherwise specified in applicable model section.

Optical Connector Type	ST
Optical Fiber Compatibility	50/125 µm or 62.5/125 µm, graded index multimode glass fiber rated for a minimum bandwidth of 600 MHz-Km. For 50/125 fiber, subtract 4 dB from the specified optical budget value.
Optical Distance Specifications	Specified transmission distances are limited to the optical loss of the fiber and any additional loss introduced by connectors, splices, and patch panels. The modules are designed to operate over the entire optical loss budget range, so they do not require a minimum loss in order to operate.
Data and Power Connections	Removable screw terminal blocks
Construction	Surface-mountable metal enclosure designed to maximize EMI/RFI shielding

Environmental

Operating Temperature	–40°C to 74°C (–40°F to 165°F)
Storage Temperature	–40°C to 85°C (–40°F to 185°F)
Humidity	0% to 95% relative, non-condensing

Accessories

LTC 4600/00 blank panel (1 rack slot). Used to cover unused slots in LTC 4637 Series racks.

Replacement Power Supply Part Numbers

UPA-1509-60	For 120 VAC, 50/60 Hz models
UPA-1509-50	For 230 VAC, 50/60 Hz models

VP-CFGSFT Bilinx Configuration Tool



Features

- ▶ **Upload, copy and paste configurations for multiple cameras over the video cable**
- ▶ **Set up and configure Bosch Dinion™ and AutoDome® cameras**
- ▶ **Control AutoDomes over the video cable**
- ▶ **Perform camera firmware updates**
- ▶ **USB compatible**

The Configuration Tool for Imaging Devices (CTFID) from Bosch Security Systems increases efficiency for CCTV installers and service personnel.

CTFID uses the new Bilinx Technology, which is a bidirectional communication method, embedded in the video signal of all of the latest Bosch Dinion® and Bosch AutoDome cameras. Using CTFID, technicians can check status, change settings, control pan/tilt/zoom (PTZ), and even update firmware from virtually anywhere along the video cable. This reduces the time for troubleshooting and service, while providing more accurate setup and adjustment, all without running additional wires or boxes. Simply connect the Configuration Tool's Coax to the USB adaptor from your laptop PC. You then have total access to all of the camera or dome settings. Because Bilinx Technology uses the standard video signal to transmit and receive data, it will also work over any passive UTP installation.

CTFID is supplied with a small hardware adaptor that plugs into any USB-compliant port supported by a Windows® operating system. Once the CTFID software is loaded, the adaptor communicates over the video signal from any Bilinx-enabled camera or AutoDome. This allows service personnel to simply tap into the video cable at a convenient location, anywhere between the camera and the monitoring station, using a simple T Connector. If Unshielded Twisted Pair (UTP) is the medium of choice, the data will still be accessible if using passive UTP transceivers.

An installer or technician can change any or all camera/dome settings, such as White Balance, AGC, Shutter Speed, etc., in online mode while connected to a device. Alternately, use the offline mode by first downloading and saving the data so that it can be manipulated and uploaded to the same or other similar devices.

Whether used for large installations with lots of cameras that require only one setting to be changed, or small installations with only one camera that needs all of its settings changed, the CTFID is a time saver.

CTFID conveniently allows the PC keyboard to become the user interface for typing settings right into the camera or dome. This simplifies tasks such as entry of OSD text descriptors, dome address setting, or camera menu navigation.

CTFID allows easy transmission of future camera or dome firmware updates via the video cable. Further reducing service costs, the installer can update features in the camera without physically removing the camera; all updates can be made from a central point, eliminating travel to each camera's location.

When purchasing VP-CFGSFT, the USB adaptor and software are included. VP-USB includes only the USB adaptor.

Installation/Configuration Notes

PC System Requirements

Video System	1024 x 768 with 16-bit color
Port	USB version 1.1 or higher
Processor	200 MHz Pentium® with MMX™ (or equivalent)
Minimum Hard Drive Space Required	50 MB
Minimum Memory Required	256 MB

Operating Systems

- Windows 98 Second Edition
- Windows Millennium Edition
- Windows 2000
- Windows XP
- Windows Vista

Technical Specifications

Format **Software supplied on CD-ROM includes installation, program and help files**

Part Numbers

VP-CFGSFT	Includes software and USB to BNC adaptor
VP-USB	USB to BNC adaptor only

Compatibility

Imaging Devices

- Version 1.0: AutoDome Version 5.2 only
- Version 2.0: above, including Dinion^{XF} models – LTC 0385, LTC 0485, LTC 0510, or LTC 0610
- Version 2.1: above, including Dinion models – LTC 0335, LTC 0355, LTC 0435, or LTC 0455 (Bosch labeled only)
- Version 2.2: above, including Dinion^{XF} Day/Night models – LTC 0495 or LTC 0620

Ordering Information

VP-CFGSFT Bilinx Configuration Tool configuration software with USB adapter	VP-CFGSFT
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Accessories

VP-USB Cable USB to BNC adaptor	VP-USB
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LTC 8016/90 Allegiant Bilinx Data Interface



Features

- ▶ **Bilinx technology interface for Allegiant Series matrix switcher/controllers**
- ▶ **Up-the-coax Pan/Tilt/Zoom (PTZ), auxiliary, and pre-position control**
- ▶ **Down-the-coax event reporting**
- ▶ **Auto-sensing setup for simplified installation**
- ▶ **Data input allows other devices to control Bilinx PTZ cameras**
- ▶ **Cascade units to control up to 496 Bilinx cameras**

The LTC 8016/90 Allegiant Bilinx Data Interface unit is an accessory used for communicating over-the-coax, with up to 16 Bilinx-capable AutoDome® and/or Dinion™ Series cameras. Compatible with all seven Allegiant Series matrix switcher/controllers, the LTC 8016 provides complete control of pan/tilt/zoom, auxiliaries, and pre-position functions of Bilinx enabled AutoDome Series cameras. In addition, complete programming of Dinion Series cameras and AutoDomes via their on-screen menus is supported.

Functions

Bilinx technology also supports camera-generated event reporting to the Allegiant. This technology allows remote alarm inputs and motion event data to be sent to the Allegiant without the need for additional wiring between the camera site and the main control location.

The LTC 8016 is designed so that other Bi-Phase code generating products, like Bosch Digital Video Recorders, can be used with the unit for control of PTZ functions and camera menu access over the video cable. This high level of flexibility provides a low cost per channel solution whenever control and configuration of remote cameras is needed.

With Bilinx technology, installation costs are reduced because no additional data communication cabling to the camera site is required. Installation time is also reduced; once the cameras and data cable to the LTC 8016 are connected, and its group ID number is set, all other internal settings are configured automatically.

Use of the LTC 8016 also reduces camera installation time because there is no need to set AutoDome site addresses. At initial connection of an AutoDome camera to the LTC 8016, its identification is automatically established.

The LTC 8016 is supplied in an enclosure compatible with mounting in an EIA 48 cm (19 in.) rack, requiring only a 1-unit rack height. To support large systems, up to 31 units can be cascaded, comprising up to 496 Bilinx-compatible cameras.

The LTC 8016 can also be used to transmit Bilinx communications over a number of video transmission systems. Example devices include fiber optic links and external balun devices that use CAT5 twisted pair cables for video communication.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

Technical Specifications

Electrical

Voltage Range	108 to 264 VAC, 50/60 Hz
Power at Rated Voltage	15 W

Maximum Video Signal Distances

Coax	Up to 300 m (1000 ft) using standard CCTV-grade RG-59U with copper center conductor and copper braided shield; up to 600 m (2000 ft.) using CCTV-grade RG-11 or RG-6.
Fiber	Up to 600 m (2000 ft) using LTC 4630 and LTC 4631 Series fiber optic modules. Note: This distance includes the length of coax cables used between the devices and the fiber optic link.
Other	Up to 230 m (750 ft) using CAT5E cable that meets ANSI/TIA/EIA-568-A requirements with NV-211 or NV-214 A-M BNC-to-twisted Balun devices (or similar passive device pair). Note: When using twisted pair links of this type, some degradation in video quality may be experienced at distances beyond 150m (500ft).

Front Panel Indicators

Status / Power	LED
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Rear Panel Indicators

System Data Link Indicator	Green LED
Data Activity Indicator	Yellow LED
Bi-Phase Code Indicator	Green LED

Bilinx Video Signal Presence	One (1) green LED for each of 16 channels
Ethernet Port	Green LED indicates link; Yellow LED indicates activity
Rear Panel Controls	
Group ID	Three (3) rotary switches
Rear Panel Connectors	
Bilinx Video Inputs	16 BNC connectors; accepts standard NTSC/PAL baseband composite video signals or video signals from Bilinx-capable cameras; 0.5–1.4 Vp-p; 75 Ohm terminated; TVS protected inputs provide improved protection against transients
Video Outputs	Male 34-pin video ribbon connector; provides 16 video outputs (unity gain using active circuitry); mating 2 m (6 ft) 16-channel LTC 8809/00 cable included
Bi-Phase Data Interface	6-position removable terminal block with "+", "-", and "shield" input connections and "+", "-", and "shield" looping output connections, with attached end-of-line termination resistor
PC Interface	Male 9-pin sub D-connector
RS-232 Data Interface ¹	Female 9-pin sub D-connector for Allegiant RS-232 interface
RS-485 Data Interface ¹	Female 9-pin sub D-connector for Allegiant RS-485 interface port connection
RS-485 'Looping' Data Interface ¹	Female 9-pin sub D-connector, for data interface to cascaded LTC 8016 unit
<small>1. One (1), 2 m (6 ft) data interface cable is supplied for use with the Allegiant RS-232 interface, the Allegiant RS-485 interface, or the cascade configuration looping connection.</small>	
Ethernet Interface	RJ-45 connector, supporting 10/100 BaseT (reserved for future use)
Power Cord	Two (2) detachable 3-wire IEC cords with grounded plug, 1.83 m (6 ft.); one with European continental plug type and one with US plug type
Environmental	
Temperature	
Operating	0°C to 50°C (32°F to 122°F)
Storage	-10°C to 70°C (14°F to 158°F)
Humidity	0% to 90% relative, non-condensing
Mechanical	
Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal case
Dimensions (W x D x H)	440 x 305 x 40 mm (17.3 x 12 x 1.7 in.)
Weight	3.8 kg (8.5 lb)
Rack-mount Kit (included)	For mounting unit in an EIA 48 cm (19 in.) rack

Optional Accessories

LTC 8508/01 Ribbon-to-BNC Interface Cable

Interface cable with a 34-pin ribbon cable on one end and 16 male BNC connectors on the other end. This cable is required when the LTC 8016 unit will be connected to control system devices that do not contain a 34-pin ribbon cable connector.

LTC 8807/00 BNC Panel Interface panel used to convert video ribbon cables from up to two LTC 8016 units into 32 standard female BNC connectors. Useful when the LTC 8016 unit will be separated from the control unit beyond the 2 m (6 ft) distance allowed by the video ribbon cable supplied with the unit.

LTC 4630, LTC 4631 Fiber Optic Series modules compatible with Bilinx communication. Available in surface-mount and rack-mount models. Refer to the LTC 4600 Series data sheet for complete information on these products.

NV-211 or NV-214 A-M BNC-to-twisted pair adaptors passive (non-amplified) devices compatible with Bilinx technology, allowing transmission of real-time monochrome or color video over unshielded twisted pair (UTP) telephone wire. Refer to the NV-214 A-M Series data sheet for complete information on these products.

Compatibility

Allegiant Matrix Switchers	Requires an Allegiant CPU firmware 8.6 or later (released May 2004)
AutoDome Cameras	All models manufactured October 2003 (version 5.11), or later
Dinion Cameras	Dinion Series manufactured March 2004, or later
Bi-Phase Devices	Any product generating standard Allegiant Bi-Phase Control Code protocol

Ordering Information

LTC 8016/90 Allegiant Bilinx Data Interface	LTC 8016/90
Accessories	
LTC 8508/01 Ribbon-to-BNC interface cable	LTC8508/01
for LTC 8016, with a 34-pin ribbon cable on one end and 16 male BNC connectors on the other end, 1 m (3 ft)	
LTC 8807/00 BNC Panel	LTC 8807/00
32 channel video interconnect panel, for use with up to 2 LTC 8809 video ribbon cables	
LTC 463x Fiber optics series	LTC463x
Fiber optic modules compatible with Bilinx communication. Available in surface-mount and rack-mount models. Refer to the LTC 4600 Series Data Sheet for complete information on these products.	

LTC 5231/90 and LTC 5234/90 Video Distribution Amplifiers



Features

- ▶ **Compatible with NTSC/PAL video standards**
- ▶ **No user adjustments needed**
- ▶ **Supports Bilinx video signals**
- ▶ **Video presence indicators**
- ▶ **Video-Loss-Detection output**
- ▶ **Optional rack-mounting**

The LTC 5231/90 and LTC 5234/90 are video distribution amplifiers that provide multiple video outputs identical to the video input signal. Their ample bandwidth easily supports today's high-resolution video signals. A video-loss-detection feature is available for interfacing to external monitoring equipment.

The LTC 5231/90 and the LTC 5234/90 also support Bilinx technology, allowing bidirectional communication through the video cable to access and control Bilinx-enabled devices such as AutoDome® and Dinion® cameras. A maximum of two (2) different types of Bilinx controller models can communicate to a common Bilinx-capable camera. Contact a Bosch Security Systems Sales Representative regarding future product capabilities.

The LTC 5231/90 is a single-channel video distribution amplifier with four (4) video outputs for distribution to other video devices. A front panel LED indicates the presence of video.

The LTC 5234/90 is a 4-channel video distribution amplifier. It has four (4) independent distribution amplifiers, each with one input and three outputs. Front panel LEDs for each distribution amplifier channel indicates the presence of video.

These are indoor products and supplied as desktop units. Rack-mount kits are available from Bosch Security Systems for mounting in a standard EIA 48-cm (19-in.) rack.

Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003 and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN and IEC Standards

Technical Specifications

Electrical

LTC 5231/90: Single-channel

Model Number	LTC 5231/90
Rated Voltage	120/230 VAC, 50/60 Hz
Voltage Range	108 to 264
Power at Rated Voltage	3.5 W
Video Inputs	One (1), fixed 75 Ohm termination
Signal Range	0.7 Vp-p to 1.4 Vp-p
Video Outputs	Four (4) isolated, 75 Ohm
Video Gain	Unity +1.0/-0%
Signal-to-noise	-72 dB typical
Bandwidth-3 dB Point	33 MHz typical
Differential Gain	0.7% typical
Differential Phase	0.8° typical
Field Time Distortion	2.9%
Video-loss Output	Relay contact pair
	Rating: 1 A at 40 VAC/VDC max.
Indicators	Power on LED (green)
	Video presence LED (green)

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal
Size (H x W x D)	4.1 x 23.4 x 26.2 cm (1.6 x 8.8 x 10.3 in.)
Weight	Approximately 1.5 kg (3.4 lb)

Environmental

Operating Temperature	0°C to 50°C (32°F to 122°F)
Humidity	20% to 90% relative, non-condensing

Options

EIA 48-cm (19-in.) Rack Kit	LTC 9101/00
	Height: 1 standard rack unit
	Width: 1 standard rack unit

Electrical**LTC 5234/90: 4-channel**

Model Number	LTC 5234/90
Rated Voltage	120/230 VAC, 50/60 Hz
Voltage Range	108 to 264
Power at Rated Voltage	5.5 W
Video Inputs	Four (4), fixed 75 Ohm termination
Signal Range	0.7 Vp-p to 1.4 Vp-p
Video Outputs	Three (3) for each channel, 75 Ohm
Video Gain	Unity +1.0/-0%
Signal-to-noise	-72 dB Typical
Bandwidth-3 dB Point	33 MHz Typical
Differential Gain	0.6% Typical
Differential Phase	0.6° Typical
Field Time Distortion	2.2%
Video-loss Output	Relay contact pair for each channel Rating: 1 A at 40 VAC/VDC max.
Indicators	Power on LED (green) Four (4) video presence LEDs (green)

Mechanical

Construction	Steel chassis with sheet metal cover and plastic bezel
Finish	Charcoal
Size (H x W x D)	4.1 x 23.4 x 26.2 cm (1.6 x 8.8 x 10.3 in.)
Weight	Approximately 1.6 kg (3.6 lb)

Environmental

Operating Temperature	0°C to 50°C (32°F to 122°F)
Humidity	20% to 90% relative, non-condensing

Bilinx, AutoDome, and Dinion are registered by Bosch Security Systems, Inc. in the US patent trademark office.

Ordering Information

LTC 5231/90 Video Distribution Amplifier 1 input, 4 output, half rack, 120/230 VAC, 50/60 Hz, mounting only with LTC 9101/00	LTC 5231/90
LTC 5234/90 Video Distribution Amplifier 1 input, 3 output, half rack, 120/230 VAC, 50/60 Hz, mounting only with LTC 9101/00	LTC 5234/90

UPA Power Supplies/ Transformers



Features

- Provides efficient, constant power for CCD and MegaPixel cameras, keyboards and other low power usage products
- Models are exceptionally energy efficient
- Meet or exceed International Energy Efficiency Level IV requirements
- 24 VAC and 12 VDC secondary output models
- Screw terminals for ease of installation on some models
- 120 VAC and 230 VAC power source models
- Safety agency certified

The Bosch UPA Series of Power Supplies is designed specifically for the continual use demands of professional surveillance products. While UPA models are used primarily with security cameras, their small size and high energy efficiency rating also make them ideal for powering a wide range of other low power security products, including many Allegiant® system accessories and control devices.

The UPA 60 Hz models are designed specifically to meet the strict efficiency standards and laws being adopted in the United States. These efficient power supplies meet or exceed the International Energy Efficiency Level IV requirements.

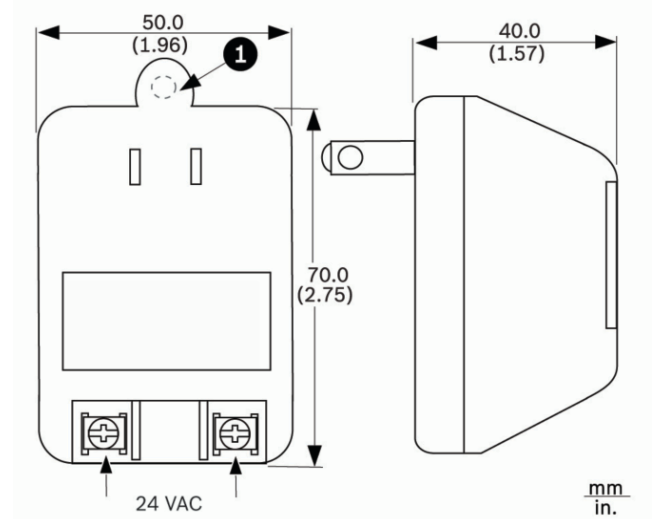
Certifications and Approvals

Electromagnetic Compatibility (EMC)	Complies with FCC Part 15, ICES-003, and CE regulations
Product Safety	Complies with CE regulations, UL, CSA, EN, and IEC standards
Energy Efficiency	Meets Energy Efficiency Level IV

Technical Specifications

Model No.	Rated Input	Rated Output
UPA-2410-60	120 VAC, 60 Hz	24 VAC, 60 Hz, 10 VA
UPA-2430-60	120 VAC, 60 Hz	24 VAC, 1.25 A, 30 VA
UPA-12300-60	120 VAC, 60 Hz	12 VDC, 300 mA
TC1382	24 VAC, 50/60 Hz	24 VAC, 50/60 Hz, 7 VA
UPA-2420-50	220-240 V, 50 Hz	24 V, 20 VA
UPA-2450-60	120 VAC, 60 Hz	24 VAC, 60 Hz, 50 VA
UPA-2450-50	230 VAC, 50 Hz	24 VAC, 50 VA
UPA-1220-60	100-240 VAC, 50/60 Hz	12 VDC, 1A, regulated
UPA-1220-50	100-240 VAC, 50/60 Hz	12 VDC, 1A, regulated
UPA-1509-60	120 VAC, 60 Hz	15 VDC, 600 mA
UPA-1509-50	220-240 VAC, 50/60 Hz	15 VDC, 600 mA

UPA-2410-60



UPA-2410-60 Power Supply

1 Legacy mounting tab

Electrical

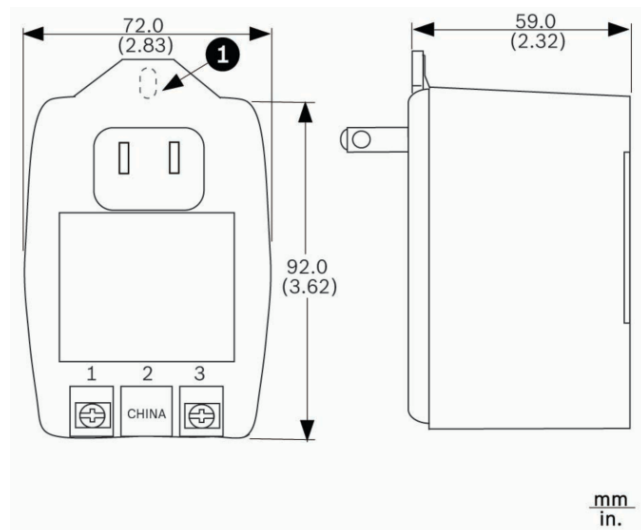
Rated Input	120 VAC, 60 Hz
Rated Output	24 VAC, 60 Hz, 10 VA

Mechanical

Input Connectors	2-prong, North American standard (non-polarized)
Output Connectors	Two (2) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	50 x 40 x 70 mm (1.96 x 1.57 x 2.75 in.)
Weight	0.25 kg (0.56 lb)
Recommended Use	24 VAC compact CCD cameras

Environmental

Operating Temperature	–10°C to 40°C (14°F to 104°F)
Storage Temperature	–30°C to 75°C (–22°F to 167°F)
Humidity	30% to 85% relative

UPA-2430-60

UPA-2430-60 Power Supply

1 Legacy mounting tab

Electrical

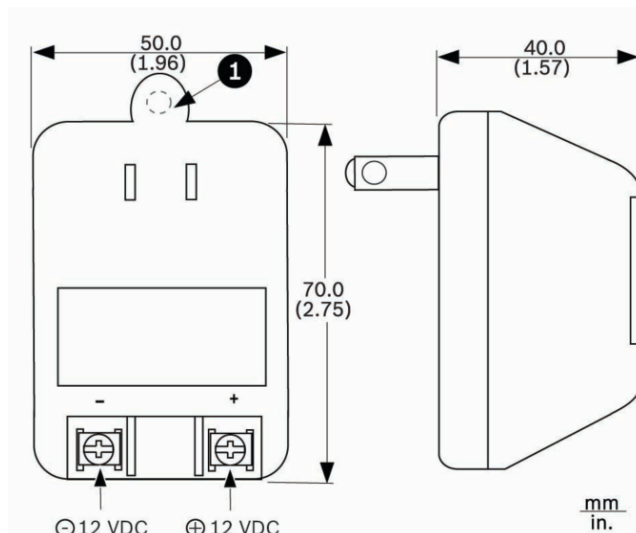
Rated Input	120 VAC, 60 Hz
Rated Output	24 VAC, 1.25 A, 30 VA

Mechanical

Input Connectors	2-prong, North American standard (non-polarized)
Output Connectors	Two (2) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	66.5 x 56.5 x 91.5 mm (2.62 x 2.22 x 3.60 in.)
Weight	0.58 kg (1.28 lb)
Recommended Use	Medium power box cameras

Environmental

Operating Temperature	–10°C to 40°C (14°F to 104°F)
Storage Temperature	–30°C to 80°C (–22°F to 176°F)
Humidity	30% to 85% relative

UPA-12300-60

UPA-12300-60 Power Supply

1 Legacy mounting tab

Electrical

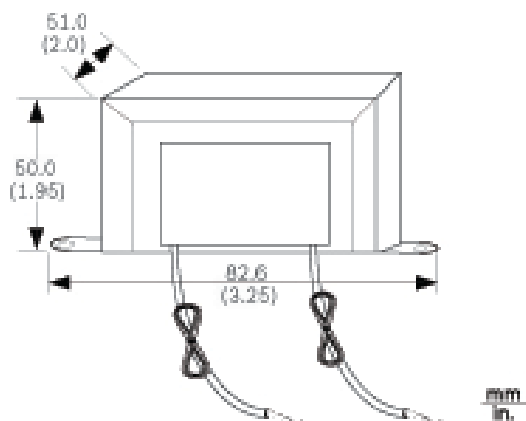
Rated Input	120 VAC, 60 Hz
Rated Output	12 VDC, 300 mA

Mechanical

Input Connectors	2-prong, North American standard (non-polarized)
Output Connectors	Two (2) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	50 x 40 x 70 mm (1.96 x 1.57 x 2.75 in.)
Weight	0.20 kg (0.44 lb)
Recommended Use	Bosch Flexidome camera series (low power models only – no heater, no IP)

Environmental

Operating Temperature	–10°C to 40°C (14°F to 104°F)
Storage Temperature	–30°C to 75°C (–22°F to 167°F)
Humidity	30% to 85% relative

TC1382 Isolation Transformer*TC1382 Isolation Transformer***Electrical**

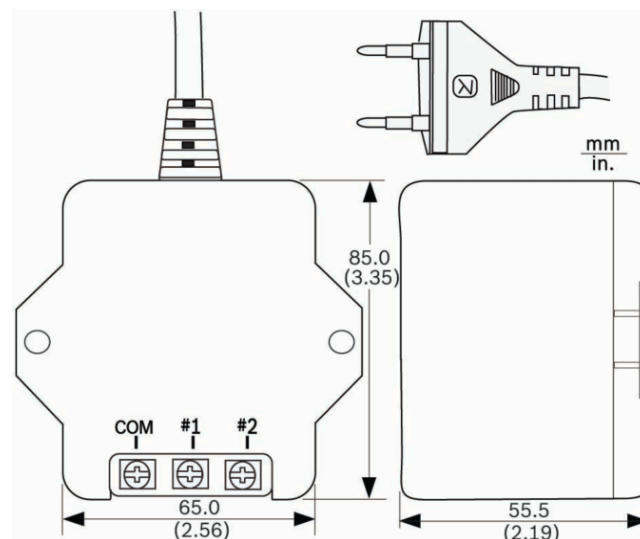
Rated Input	24 VAC, 50/60 Hz
Rated Output	24 VAC, 50/60 Hz, 7 VA

Mechanical

Input Connectors	Black wire leads, 203 mm (8 in.)
Output Connectors	Brown wire leads, 203 mm (8 in.)
Construction/Finish	Uncased
Dimensions (W x D x H)	82.6 x 51 x 50 mm (3.25 x 2 x 1.95 in.)
Weight	0.45 kg (1 lb)
Recommended Use	24 VAC isolation of low powered box cameras

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Humidity	30% to 85% relative

UPA-2420-50*UPA-2420-50 Power Supply***Electrical**

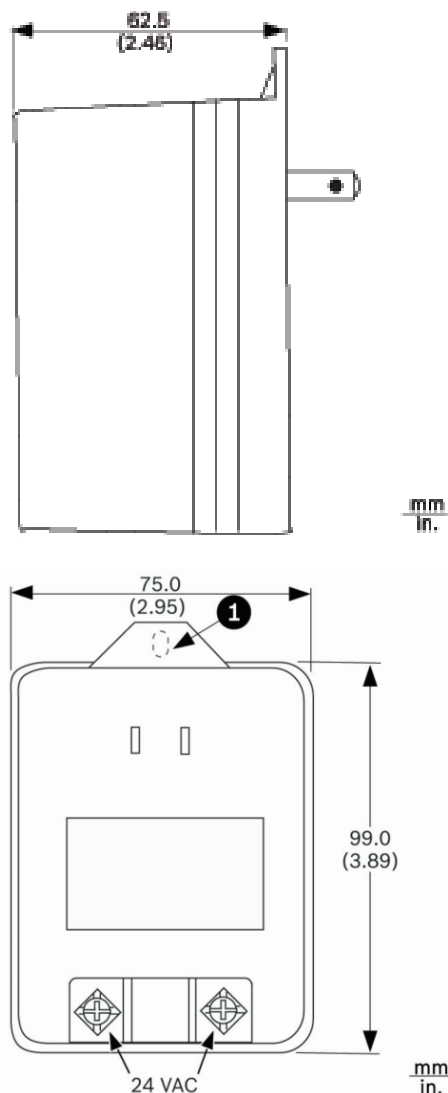
Rated Input	220-240 V, 50 Hz
Rated Output	24 V, 20 VA

Mechanical

Input Connectors	2-prong, European Europlug standard (4 mm / 19 mm)
Output Connectors	Three (3) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	65.0 x 55.5 x 85.0 mm (2.56 x 2.19 x 3.35 in.)
Weight	0.78 kg (1.72 lb)
Recommended Use	Medium power box cameras

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Humidity	30% to 85% relative

UPA-2450-60

UPA-2450-60 Power Supply

1 Legacy mounting tab

Electrical

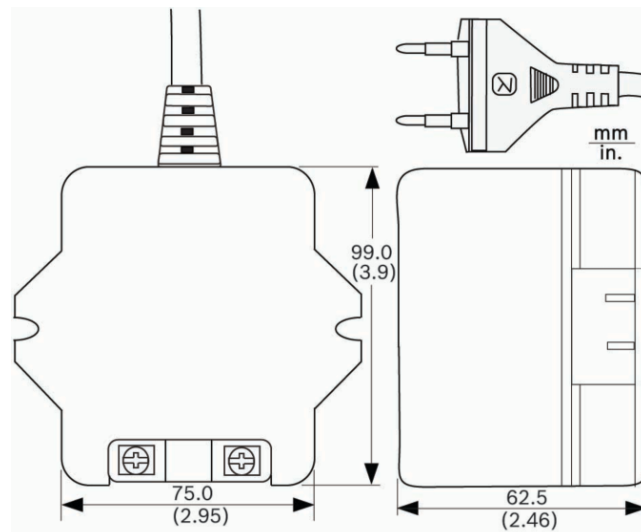
Rated Input	120 VAC, 60 Hz
Rated Output	24 VAC, 50 VA

Mechanical

Input Connectors	2-prong, North American standard (non-polarized)
Output Connectors	Two (2) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	75.0 x 62.5 x 99.0 mm (2.95 x 2.46 x 3.89 in.)
Weight	0.84 kg (1.86 lb)
Recommended Use	Bosch KBE Series pre-package cameras

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Humidity	30% to 85% relative

UPA-2450-50

UPA-2450-50 Power Supply

Electrical

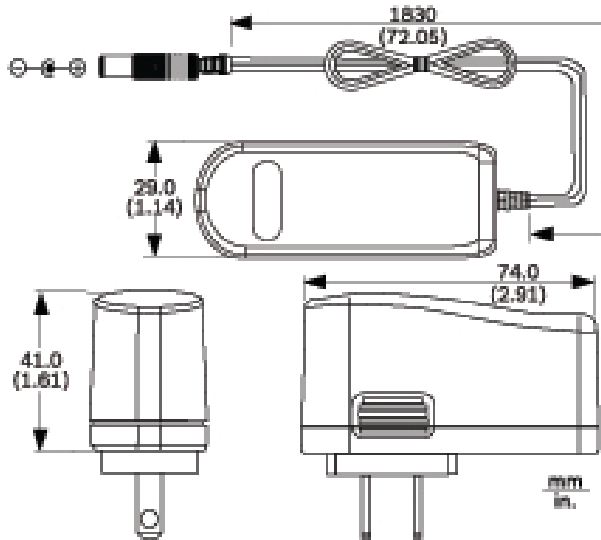
Rated Input	230 VAC, 50 Hz
Rated Output	24 VAC, 50 VA

Mechanical

Input Connectors	2-prong, European Europlug standard (4 mm / 19 mm)
Output Connectors	Two (2) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	75 x 62.5 x 99.0 mm (2.95 x 2.46 x 3.9 in.)
Weight	1.16 kg (2.56 lb)
Recommended Use	Bosch KBE Series pre-package camera

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 75°C (-22°F to 167°F)
Humidity	30% to 85% relative

UPA-1220-60*UPA-1220-60 Power Supply***Electrical**

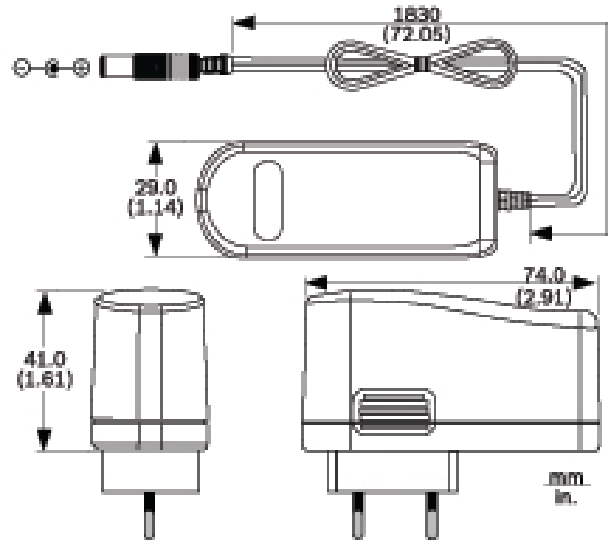
Rated Input	100-240 VAC, 50/60 Hz
Rated Output	12 VDC, 1.0 A, regulated

Mechanical

Input Connectors	2-prong, North American standard (non-polarized)
Output Connectors	2.1 x 5.5 x 10.0 mm plug (0.8 x 0.22 x 0.4 in.)
Construction/Finish	Black plastic case
Dimensions (W x D x H)	74.0 x 29.0 x 41.0 mm (2.91 x 1.14 x 1.61 in.)
Weight	0.12 kg (0.26 lb)
Recommended Use	Bosch megapixel cameras

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Humidity	30% to 85% relative

UPA-1220-50*UPA-1220-50 Power Supply***Electrical**

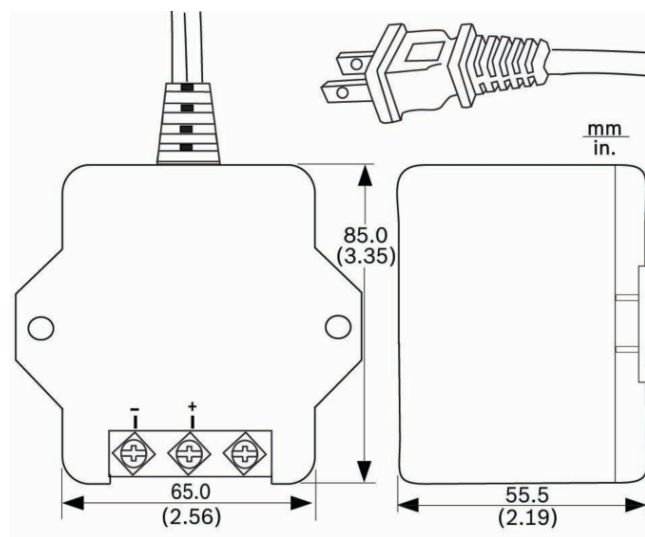
Rated Input	100-240 VAC, 50/60 Hz
Rated Output	12 VDC, 1.0 A, regulated

Mechanical

Input Connectors	2-prong, European Europlug standard (4 mm / 19 mm)
Output Connectors	2.1 x 5.5 x 10.0 mm plug (0.8 x 0.22 x 0.4 in.)
Construction/Finish	Black plastic case
Dimensions (W x D x H)	74.0 x 29.0 x 41.0 mm (2.91 x 1.14 x 1.61 in.)
Weight	0.12 kg (0.26 lb)
Recommended Use	Bosch megapixel cameras

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Humidity	30% to 85% relative

UPA-1509-60

UPA-1509-60 Power Supply

Electrical

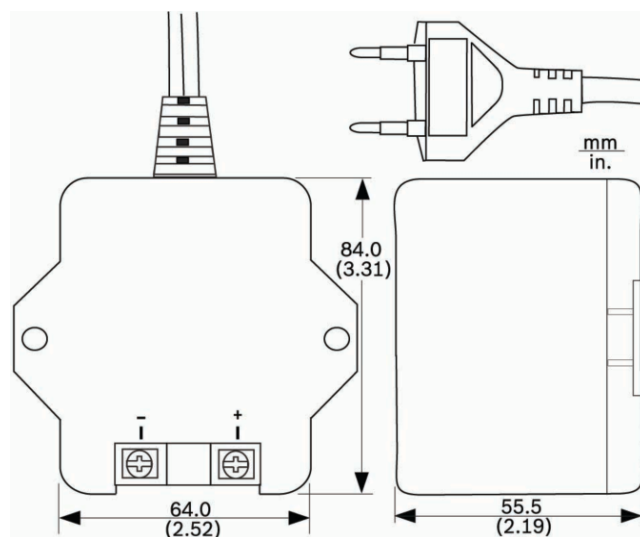
Rated Input	120 VAC, 60 Hz
Rated Output	15 VDC, 600 mA

Mechanical

Input Connectors	2-prong, North American standard (non-polarized)
Output Connectors	Three (3) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	64.7 x 53.8 x 84.7 mm (2.55 x 2.12 x 3.33 in.)
Weight	0.66 kg (1.46 lb)
Recommended Use	Bosch IntuiKey Series keyboards, LTC 8786 Series converters, LTC 8782 Series translators, LTC 8557 Series extension kits

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Humidity	35% to 85% relative

UPA-1509-50

UPA-1509-50 Power Supply

Electrical

Rated Input	220-240 VAC, 50/60 Hz
Rated Output	15 VDC, 600 mA

Mechanical

Input Connectors	2-prong, European Europlug standard (4 mm / 19 mm)
Output Connectors	Two (2) screw terminals
Construction/Finish	Black plastic case
Dimensions (W x D x H)	64.7 x 53.8 x 84.7 mm (2.55 x 2.12 x 3.33 in.)
Weight	0.66 kg (1.46 lb)
Recommended Use	Bosch IntuiKey Series keyboards, LTC 8786 Series converters, LTC 8782 Series translators, LTC 8557 Series extension kits

Environmental

Operating Temperature	-10°C to 40°C (14°F to 104°F)
Storage Temperature	-30°C to 80°C (-22°F to 176°F)
Humidity	30% to 85% relative

Ordering Information

UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	UPA-2410-60
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	UPA-2450-60
UPA-1220-50 Power Supply 220 VAC, 50 Hz, 12 VDC, 1 A Out, regulated	UPA-1220-50
UPA-1509-50 Power Supply 220 VAC, 50 Hz, 15 VDC, 9 VA Out	UPA-1509-50
UPA-1509-60 Power Supply 120 VAC, 60 Hz, 15 VDC, 9 VA Out	UPA-1509-60

Ordering Information

UPA-2450-50 Power Supply
220 VAC, 50 Hz, 24 VAC, 50 VA Out**UPA-2450-50**

UPA-2420-50 Power Supply
220 VAC, 50 Hz, 24 VAC, 20 VA Out**UPA-2420-50**

Power Supplies and Transformers

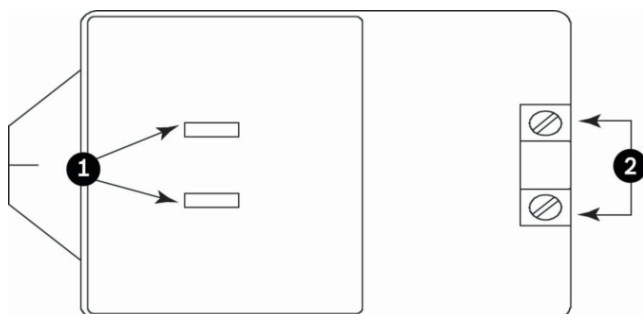


Features

- ▶ For CCD cameras and other low power applications
- ▶ 24 VAC, 15 VDC and 12 VDC secondary output models
- ▶ Models for 120 VAC, 230 VAC and 24 VAC power sources
- ▶ Isolation transformer for 24 VAC
- ▶ Safety agency certified

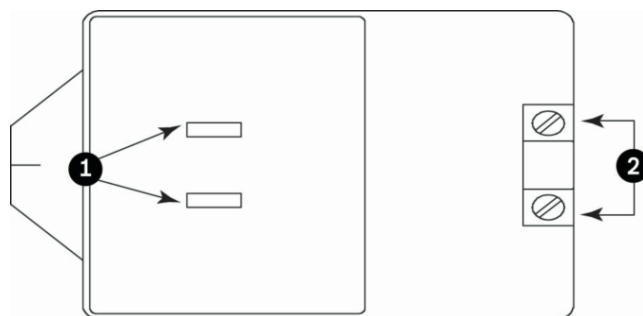
The Bosch line of Power Supplies and Transformers is primarily designed for CCD cameras. Their small size and low power requirements also make them ideal for powering many other low power security products, including many Allegiant® system accessories and control devices.

Installation/Configuration Notes



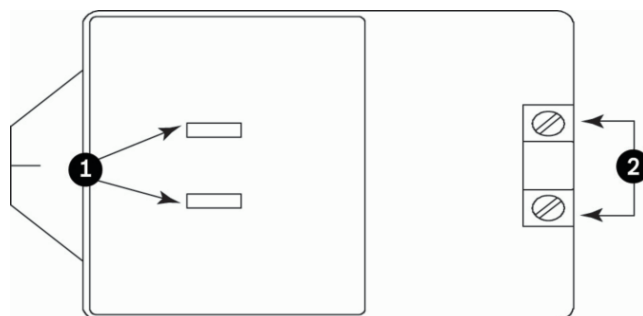
RT2440SL Power Supply

- 1 Input 120 VAC, 60 Hz
- 2 To 24 VAC on Camera



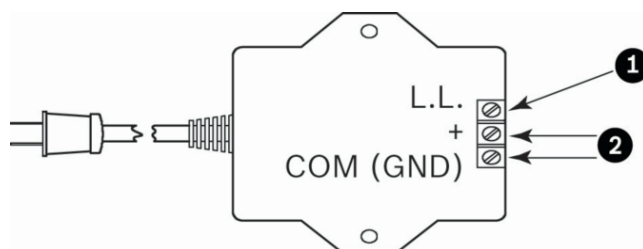
TC1334 Power Supply

- 1 Input 120 VAC, 60 Hz
- 2 To 24 VAC on Camera



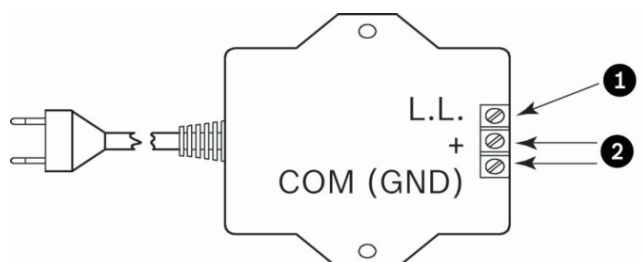
RTD12/3RT Power Supply (for CAM940x cameras)

- 1 Input 120 VAC, 60 Hz
- 2 To 12 VDC Regulated on Camera



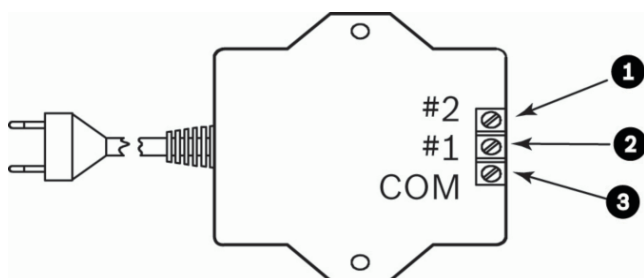
TC120PS Power Supply

- 1 Not used
- 2 To 15 VDC Terminals on Cameras



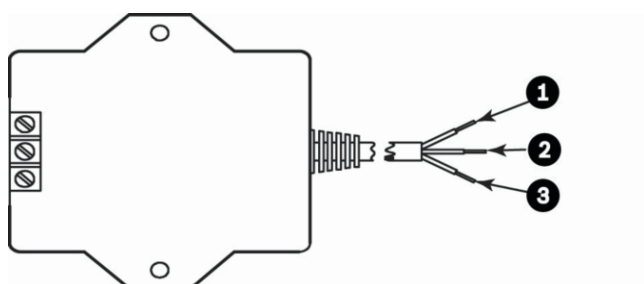
TC220PS Power Supply

- 1 Not Used
- 2 To 15 VDC Terminals on Cameras



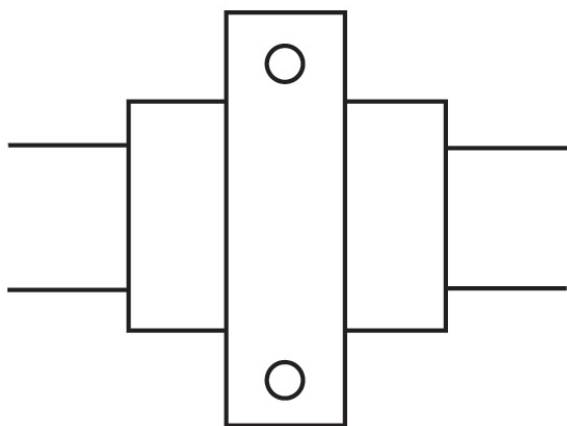
TC220PSX-24 Power Supply

- 1 To 24 VAC Terminals on Camera
- 2 With 240 VAC Input: Use #1 and COM
- 3 With 220 VAC Input: Use #2 and COM

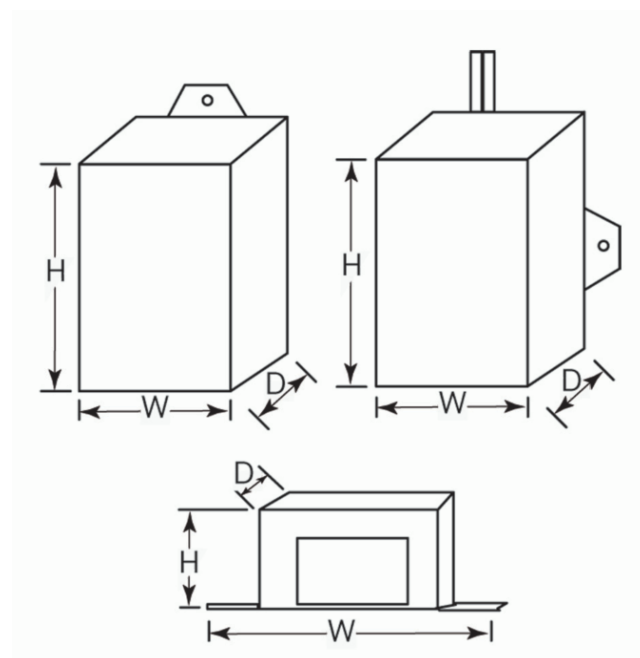


TC24PS Power Supply

- 1 Blue Not Used
- 2 Green (-) GND To 15 VDC Terminals on Camera
- 3 Brown (+) To 15 VDC Terminals on Camera



TC1382 Isolation Transformer



Dimensions Codes

Note The Dimension specified are approximate and relate to the general diagrams shown above

Technical Specifications

Model No.	Rated Input	Rated Output
RT2440SL	120 VAC 60 Hz	24 VAC 60 Hz, 40 VA
TC1334	120 VAC 60 Hz	24 VAC 60 Hz, 30 VA
RTD12/3RT	120 VAC 60 Hz	12 VDC regulated 300 mA
TC120PS	120 VAC 50/60 Hz	15 VDC, 9 VA
TC220PS	220–240 VAC 50/60 Hz	15 VDC, 9 VA
TC220PSX-24	220–240 VAC 50/60 Hz	24 VAC 50/60 Hz, 20 VA
TC24PS	24–30 VAC 50/60 Hz	15 VDC, 9 VA
TC1382 ¹	24 VAC 50/60 Hz	24 VAC 50/60 Hz, 7 VA

1. Isolation transformer.

For 120 VAC Power Sources

RT2440SL

Rated Input	120 VAC, 60 Hz
Rated Output	24 VAC, 60 Hz, 40 VA

Surge Protection

Maximum Spike Voltage	6,000 Volts
Maximum Spike Current	4,500 Amps

Connectors

Input	Two (2)
-------	---------

RT2440SL

Output	Two (2) screw terminals
Construction/Finish	White plastic case
Dimensions (W x D x H)	66.8 x 57.2 x 82.6 mm (2.63 x 2.25 x 3.25 in.)
Weight	0.65 kg (1.44 lb)
Safety	UL, cUL

TC1334

Rated Input	120 VAC, 60 Hz
Rated Output	24 VAC, 60 Hz, 30 VA

Connectors

Input	2-prong
Output	Two (2) screw terminals
Construction/Finish	Beige plastic case
Dimensions (W x D x H)	70 x 56.4 x 88.9 mm (2.75 x 2.22 x 3. in.)
Weight	0.62 kg (1.36 lb)
Safety	UL

RTD12/3RT

Rated Input	120 VAC, 60 Hz
Rated Output	12 VDC regulated, 300 mA
LED Indicator	Supervises power
Connectors	2-prong input, 2 screw terminals for output
Construction	Plastic case with built-in strain relief
Finish	White
Dimensions (W x D x H)	50.8 x 41.4 x 65.0 mm (2.0 x 1.63 x 2.56 in.)
Weight	0.23 kg (0.5 lb)
Product Safety	UL, cUL

TC120PS

Rated Input	120 VAC, 50/60 Hz
Rated Output	15 VDC, 9 VA

Connectors

Input	2-wire cord with plug, 2 m (6.5 ft)
Output	Screw terminals
Construction/Finish	Black plastic
Dimensions (W x D x H)	63.5 x 54 x 82.6 mm (2.5 x 2.12 x 3.25 in.)
Weight	0.65 kg (1.44 lb)
Safety	UL, CSA

For 220–240 Vac Power Sources**TC220PS**

Rated Input	220–240 VAC, 50/60 Hz
Rated Output	15 VDC, 9 VA

Connectors

Input	2-wire cord with plug, 2 m (6.5 ft)
Output	Screw terminals
Construction/Finish	Black plastic
Dimensions (W x D x H)	63.5 x 54 x 82.6 mm (2.5 x 2.12 x 3.25 in.)

TC220PS

Weight	0.60 kg (1.33 lb)
Safety	GS, CE

TC220PSX-24

Rated Input	220–240 VAC, 50/60 Hz
Rated Output	24 VAC, 50/60 Hz, 20 VA

Connectors

Input	2-wire cord with plug, 2 m (6.5 ft)
Output	Screw terminals
Construction/Finish	Black plastic
Dimensions (W x D x H)	63.5 x 54 x 82.6 mm (2.5 x 2.12 x 3.25 in.)
Weight	0.78 kg (1.72 lb)
Safety	GS, CE

For 24 VAC Power Sources**TC24PS**

Rated Input	24 VAC to 30 VAC, 50/60 Hz
Rated Output	15 VDC, 9 VA

Connectors

Input	Screw terminals
Output	Wire leads, 3.6 m (12 ft)
Construction/Finish	Black plastic
Dimensions (W x D x H)	63.5 x 54 x 82.6 mm (2.5 x 2.12 x 3.25 in.)
Weight	0.73 kg (1.61 lb)

TC1382 Isolation Transformer

Rated Input	24 VAC, 50/60 Hz
Rated Output	24 VAC, 50/60 Hz, 7 VA

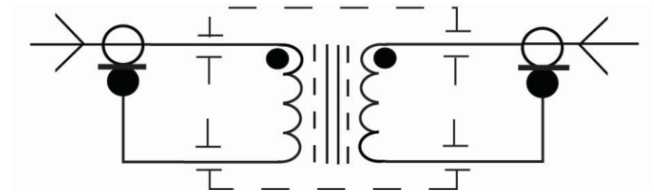
Connectors

Input	Black wire leads, 203 mm (8 in.)
Output	Brown wire leads, 203 mm (8 in.)
Construction/Finish	Uncased
Dimensions (W x D x H)	82.6 x 51 x 50 mm (3.25 x 2 x 1.95 in.)
Weight	0.45 kg (1 lb)

Ordering Information

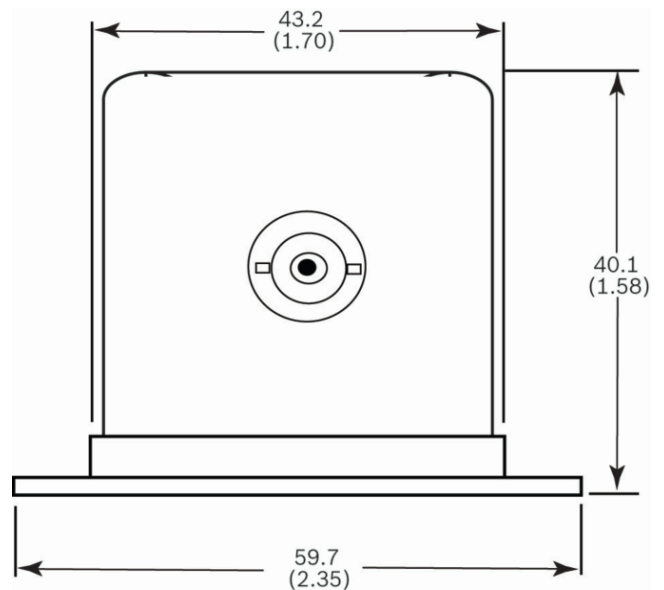
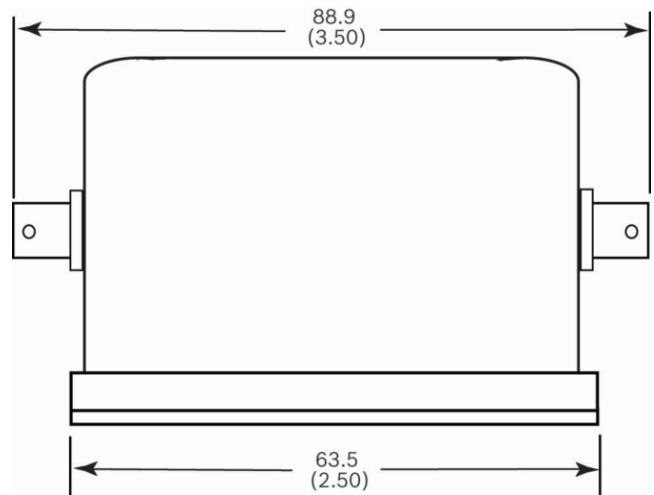
TC1334 Power Supply Unit 120 VAC/24 VAC, 60 Hz, 30 VA	TC1334
TC120PS Power Supply Unit 110-120 VAC/15 VDC, 50/60 Hz, 300 mA	TC120PS
TC220PS Power Supply Unit 230 VAC/12 VDC, 50 Hz, 10 VA	TC220PS
TC24PS Power Supply Unit 24 VAC/15 VDC, 50/60 Hz, 9 VA	TC24PS
TC1382 Isolation Transformer 24 VAC	TC1382

TC8235GIT Ground Loop Isolation Transformer



Circuit Diagram of Transformer

Input 75 Ω UNB
Output 75 Ω UNB

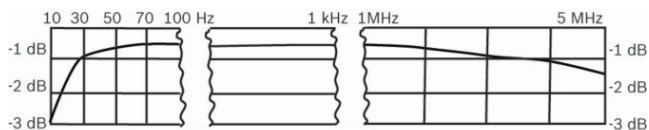


Features

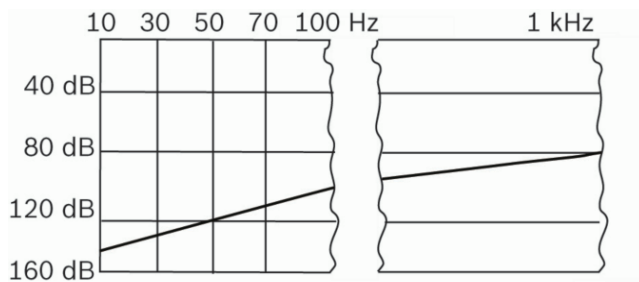
- ▶ Ground isolation for 75 Ohm video/data lines
- ▶ 10 Hz to 7 MHz bandwidth
- ▶ Low insertion loss
- ▶ Insulated BNC connectors
- ▶ Excellent discrimination against power line inter-ground potentials
- ▶ Easy installation

The TC8235GIT is a one-to-one isolation transformer for 75 Ohm coax video/data lines. These units are designed to eliminate the effects of power line and spurious noise potentials between ground points on transmitted signals.

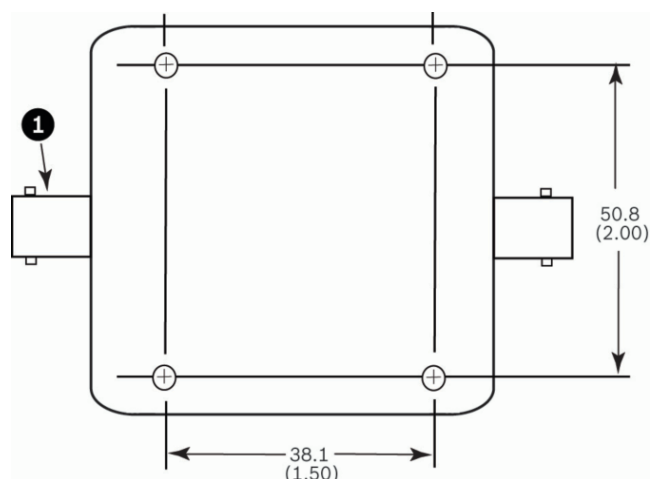
Installation/Configuration Notes



Signal Transmission



Ground Isolation



Dimensional Outline in mm (inches)

1 Insulated BNC Connector (2)

Technical Specifications

Electrical

Impedance Levels 75 Ω unbalanced, input and output

Insertion Loss 0.5 dB at 1 kHz

Return Loss Better than 20 dB, 120 Hz to 5 MHz

Sine Wave Transmission(Bandwidth)

Amplitude Flat loss is 0.45 dB maximum at 15 kHz, 3 dB down relative mid-frequency response at 10 Hz and 7 MHz

Phase Linear with slope of 18 MHz, 1 MHz to 5 MHz

Ground Isolation $E_n/E_o = 115$ dB at 60 Hz (decreases with frequency at 6 dB/octave to 30 dB minimum at 1 MHz)

Dielectric Withstanding Voltage

500 Vrms, 60 Hz (from connectors to case and each other)

Mechanical

Weight 223 g (0.5 lb)

Finish Black

Ordering Information

TC8235GIT Ground Loop Isolation
Transformer

TC8235GIT

PSU-224-DC100 Universal Power Supply



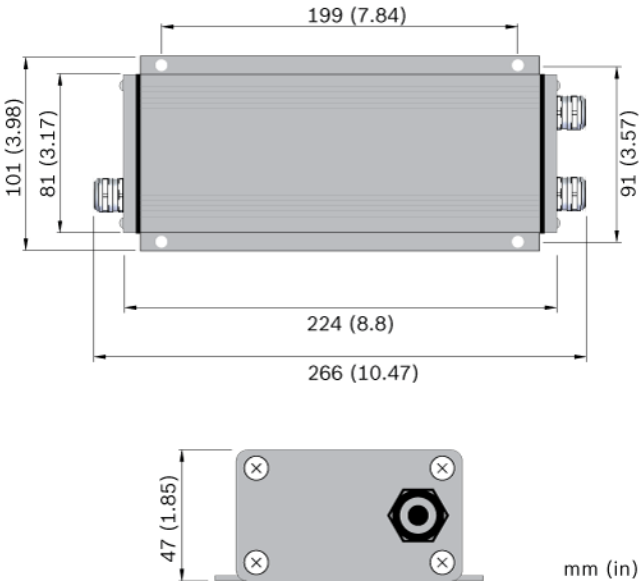
The PSU-224-DC100 universal power supply provides DC voltage to one or two devices requiring a total power of up to 96 W. The power supply accepts 100-240 VAC input, and outputs 24 VDC. The power supply is certified for UL safety ratings as a Class 2 power circuit. The power supply uses input and output clamps to connect the power input cable, and up to two power output cables (no cables included). The power supply is enclosed in a rugged metal housing, and is suitable for indoor and outdoor use (IP66 rated).

Certifications and Approvals

Region	Certification
Europe	CE
USA	FCC + UL

Installation/Configuration Notes

Dimensions



Technical Specifications

Output	
DC voltage	24 VDC
Rated current	4.0 A
Rated power	96 W (total both outputs)
Input	
Voltage range	100 to 240 VAC
Frequency range	50 to 60 Hz
AC current	1.5 A (115 VAC) 0.5 A (230 VAC)
Construction	
Weight	1.25 kg
Material	Casing: Aluminum extrusion; End-caps: mild steel.
Finish	Powder coated paint RAL 9010 (Pure White)
Cable glands	Suitable for cable diameter 4 to 8 mm
Environment	
Water protection	IP66
Working temperature	-30 to +50°C
Working humidity	20 to 95% RH non-condensing
Storage temperature	-40 to +80°C
Storage humidity	10 to 95% RH non-condensing
Safety & EMC	
Safety standards	EN60950-1UL60950-1EN60950-22, IP66

Harmonic current	Compliance to Class C (less than 75% load); EN61000-3-3
EMS immunity	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, EN61547, light industry level (surge 4KV), criteria A

Ordering Information

PSU-224-DC100 Universal Power Supply	PSU-224-DC100
Universal Power Supply 2x24 VDC	

TC9209MM-W, MM3000, TC9217MM, TC9220MM Series Monitor Mounts



Features

- ▶ For mounting a 23 cm (9 in.) to a 53 cm (21 in.) monitor
- ▶ Wide range of sizes
- ▶ For wall and ceiling installations
- ▶ Adjustable tilt up to 30° and 360° swivel
- ▶ Top and front roll-out protection
- ▶ Sturdy construction

This series of monitor mounts provides a convenient method of mounting most monitors to ceilings and walls. Units are available for mounting 23 cm (9 in.) to 53 cm (21 in.) monitors. The trays on all units swivel and are adjustable for tilt; monitors are easily mounted to the random hole patterns on the adjustable width trays.

See the compatibility chart for the correct monitor mount for your Bosch monitor.

Functions

The **MM3000** is a ceiling mount for 23 cm (9 in.) to 30 cm (12 in.) monitors. It is designed to mount to a ceiling or flat overhead surface. Its lightweight aluminum construction offers fast and easy installation. The tray locks with an Allen wrench.

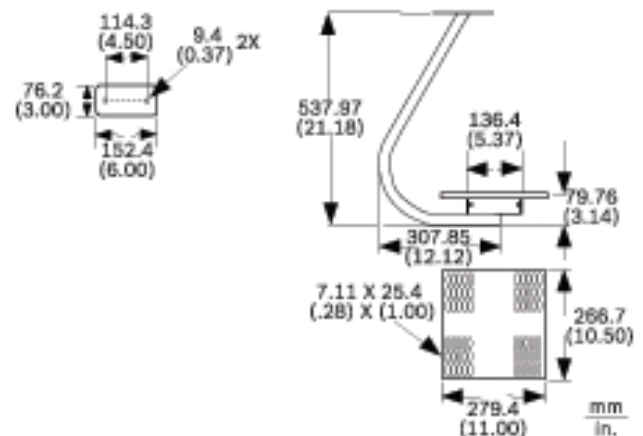
The **TC9209MM-W** is designed to mount 23 cm (9 in.) to 33 cm (13 in.) monitors to a flat wall. These units have a locking mounting tray with a key-type lock.

The **TC9200MM** series have all been redesigned to incorporate anti-roll-out brackets to provide an extra measure of safety and support to prevent a monitor from falling forward when mounted in the tilt-down position. Maximum tilt-down angle has been increased to 30°.

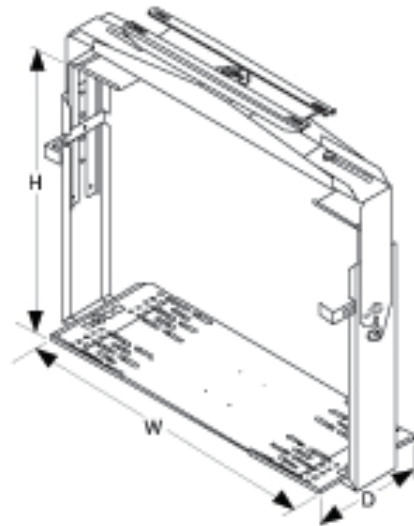
All parts are included in the **TC9200MM-C** series to mount various monitor sizes to a structural ceiling. The TC9220EC series extension columns can be used to increase clearance from the ceiling by 610 mm (2 ft) and 1219 mm (4 ft) lengths.

The **TC9200MM-W** series are used to mount monitors to a flat wall. Mounting arms are included and allow for 360° swivel of the mounted monitor.

Installation/Configuration Notes

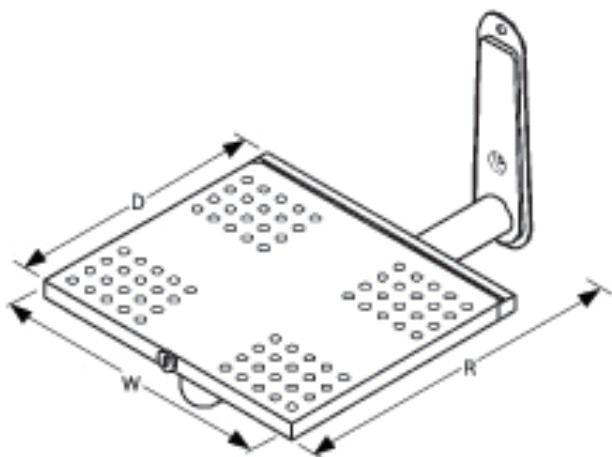


MM3000 Ceiling Mount



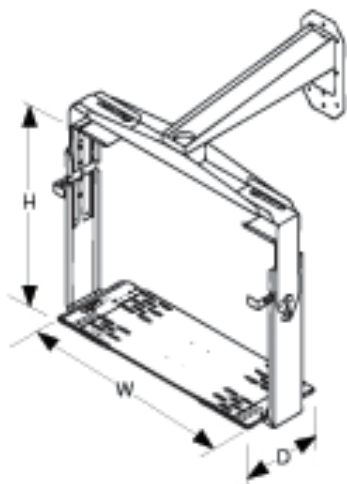
TC9217MM-C / TC9220MM-C Ceiling Mount

Model No.	Width	Height	Depth
	mm (in.)	mm (in.)	mm (in.)
TC9217MM-C	343 to 534 (13.5 to 21)	324 to 457 (12.8 to 18)	254 (10)
TC9220MM-C	457 to 660 (18 to 26)	400 to 533 (15.8 to 21)	356 (14)



TC9209MM-W Wall Mount:

Width	Depth	Reach
mm (in.)	mm (in.)	mm (in.)
267 (10.5)	292 (11.5)	368 (14.5)



TC9220MM-W Suspended Wall Mounts:

Model No.	Width	Height	Depth	Reach
	mm (in.)	mm (in.)	mm (in.)	mm (in.)
TC9220MM-W	457 to 660 (18 to 26)	400 to 533 (15.8 to 21)	356 (14)	457 (18)

Technical Specifications

MM3000

Monitor Size	23 cm (9 in.) to 30 cm (12 in.)
Maximum Load	18 kg (40 lb)
Pan	360°
Tilt	45° maximum forward
Finish	Off-white
Dimensions	See drawing ¹
Weight	3.62 kg (8 lb)

1. Dimensions are shown in inches; dimensions in parenthesis are in centimeters.

TC9217MM-C

Monitor Size	33 cm (13 in.) to 43 cm (17 in.)
Maximum Load	
Concrete Ceiling	65 kg (150 lb)
Wood Stud Ceiling	57 kg (125 lb)
Pan	360°
Tilt Range	30°
Finish	Black
Dimensions	See drawing
Weight	14.2 kg (31.3 lb)

TC9220MM-C

Monitor Size	48 cm (19 in.) to 53 cm (21 in.)
Maximum Load	
Concrete Ceiling	65 kg (150 lb)
Wood Stud Ceiling	57 kg (125 lb)
Pan	360°
Tilt Range	30°
Finish	Black
Dimensions	See drawing
Weight	16.7 kg (36.7 lb)

TC9209MM-W

Monitor Size	23 cm (9 in.) to 33 cm (13 in.)
Maximum Load	22.7 kg (50 lb)
Pan	360°
Tilt Range	0°/5°/10°
Finish	Black
Dimensions	See drawing
Weight	3.9 kg (8.5 lb)

TC9220MM-W

Monitor Size	48 cm (19 in.) to 53 cm (21 in.)
Maximum Load	
Concrete Wall	68 kg (150 lb)
Wood Stud Wall	56.7 kg (125 lb)
Pan	360°
Tilt Range	30°
Finish	Black

Dimensions	See drawing
Weight	21.3 kg (46.9 lb)

Monitor Mount Compatibility Chart

Bosch Monitor Model No.	Ceiling Mount	Wall Mount
Monochrome		
LTC 2009/51, /61	MM3000	TC9209MM-W
LTC 2012/51, /61	MM3000	TC9209MM-W
LTC 2017/50, /60	TC9217MM-C	N/A
LTC 2020/91	TC9220MM-C	TC9220MM-W
Color		
LTC 2810/91	TC9217MM-C	N/A
LTC 2813/60, /90	TC9217MM-C	N/A
LTC 2814/90	TC9217MM-C	N/A
LTC 2821/91	TC9220MM-C	TC9220MM-W
LTC 2910/50, /60, /90	MM3000	TC9209MM-W
LTC 2915/91	TC9217MM-C	N/A
LTC 2917/90, /91	TC9217MM-C	N/A
LTC 2919/90	TC9220MM-C	TC9220MM-W

Ordering Information

TC9217MM-C Monitor Mount ceiling, for LTC 2017, 2810, 2813, 2915, 2917	TC9217MM-C
TC9220MM-C Monitor Mount ceiling, for LTC 2020, 2821, 2919	TC9220MM-C
TC9209MM-W Monitor Mount wall, for LTC 2009, 2012, 2910	TC9209MM-W
TC9220MM-W Monitor Mount wall, for LTC 2020, 2821, 2919	TC9220MM-W

Accessories for LCD Monitors



Features

- ▶ **Fixed wall mount bracket for LCD monitors**
- ▶ **Swivel and tilt wall mount bracket for LCD monitors**
- ▶ **Easy to install two piece design brackets**
- ▶ **Universal rack mount for 15-inch, 17-inch, and 19-inch UML monitors**
- ▶ **Supports all LCD monitors with a VESA®-compliant pattern**
- ▶ **Mounts support up to 12 kg (26.5 lb) for monitors smaller than 20 inches and up to 90.71 kg (200 lb) for larger monitors**
- ▶ **Universal power supply compatible with up to 19-inch LCD**
- ▶ **Universal power supply provides 12 VDC / 5.0 A output**

The Bosch series of Universal Monitor Mounts (UMM) are designed to mount any VESA®-compliant monitor to a wall or in a rack-mount cabinet, up to 12 kg (26.5 lb) in weight. The wall mounts offered in the series of Universal Monitor Mounts (UMM) are the UMM-LW-20B and the UMM-LW-30B, the rack mount is the UMM-LCDUB-RM.

The ST660 wall mount is ideal for mounting a 32-inch to a 60-inch LCD screen to a wall. The one-touch tilt feature allows adjustment of $\pm 15^\circ$ without the use of tools.

Each wall mount comes in two pieces: a VESA®-compliant mounting plate that attaches to the monitor and a V-shaped wall bracket. Once both pieces of the mount are attached, the monitor slides into the V-shaped bracket on the wall, making installation quick and easy. A set screw secures the two sections of the mount together.

The RMK-08 rack mount is ideal for mounting 15-inch, 17-inch, or 19-inch UML LCD monitors. The one-touch tilt feature allows adjustment of $\pm 35^\circ$ without the use of tools.

The UMM-LCDUB-RM is ideal for mounting 15-inch, 17-inch, or 19-inch UML LCD monitors. This mount supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet.

The Bosch Universal Power Supply (UMP) is compatible with all Bosch LCD monitors up to 19 inches, and provides 12 VDC / 5.0 A output.

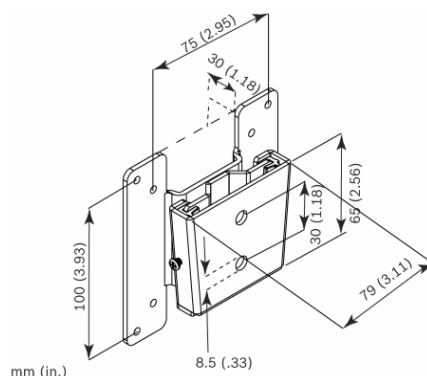
Functions

Model No.	Mount Type	Maximum Weight
UMM-LW-20B	Fixed Wall Mount Bracket	12 kg (26.5 lb)
UMM-LW-30B	Swivel/Tilt Wall Mount Bracket	12 kg (26.5 lb)
UMM-LCDUB-RM	Rack Mount	9.5 kg (20.94 lb)
ST660	Universal Tilt Wall Mount	90.71 kg (200 lb)
RMK-08	Rack Mount Bracket	9.5 kg (20.94 lb)

Technical Specifications

UMM-LW-20B Fixed Wall Mount Bracket

The UMM-LW-20B is a fixed wall mount that is designed for use with any LCD flat-screen, VESA®-compliant monitor, up to 12 kg (26.5 lb) in weight. The mount moves the monitor 1.5 cm (0.59 in.) off of the wall.



UMM-LW-20B Fixed Wall Mount

Mechanical

Fixed Wall Mount Bracket (UMM-LW-20B)

Monitor Type	LCD monitors only
Maximum Weight Capacity	12 kg (26.5 lb)
Swivel Adjustment	360°
Material	Steel
Color	Black
Dimensions	See drawing above

Fixed Wall Mount Bracket (UMM-LW-20B)

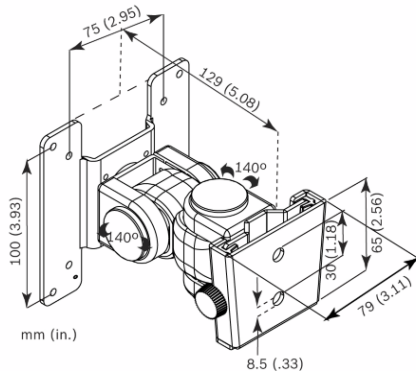
Weight	0.47 kg (1.04 lb)
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Parts Included**UMM-LW-20B Fixed Wall Mount Bracket**

1	VESA® mounting plate, fixed
1	Wall bracket
2	1/4 x 2.0 in. Wedge anchors (for concrete installations)
2	1/2 x 2.0 in. Wood screws
4	M4 x 10 mm Screws
1	Level

UMM-LW-30B Swivel/Tilt Wall Mount Bracket

The UMM-LW-30B is a swivel/tilt wall mount that is designed for use with any LCD flat-screen, VESA®-compliant monitor, up to 12 kg (26.5 lb) in weight. This mount allows you to swivel the monitor 360° to position it in either landscape or portrait view. The mount also allows you to swivel and tilt the monitor 140° (±70°) for the best viewing angle.

*UMM-LW-30B Swivel/Tilt Mount***Mechanical****Swivel/Tilt Wall Mount Bracket (UMM-LW-30B)**

Monitor Type	LCD monitors only
Maximum Weight Capacity	12 kg (26.5 lb)
Swivel Adjustment	360°
Swivel Range	140° (±70°)
Tilt Range	140° (±70°)
Material	Steel
Color	Black
Dimensions	See drawing above
Weight	0.84 kg (1.86 lb)

Parts Included**UMM-LW-30B Swivel/Tilt Wall Mount Bracket**

1	VESA® mounting plate with swivel/tilt arm
1	Wall bracket
2	1/4 x 2.0 in. Wedge anchors (for concrete installations)
2	1/2 x 2.0 in. Wood screws
4	M4 x 10 mm Screws

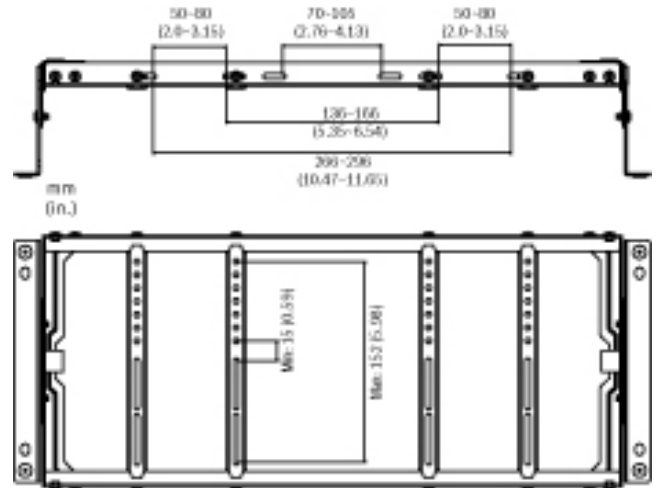
UMM-LW-30B Swivel/Tilt Wall Mount Bracket

1	5/16 in. Allen Wrench
---	-----------------------

1	Level
---	-------

UMM-LCDUB-RM

The UMM-LCDUB_RM supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet.

**Mechanical****Rack Mount Bracket (UMM-LCDUB-RM)**

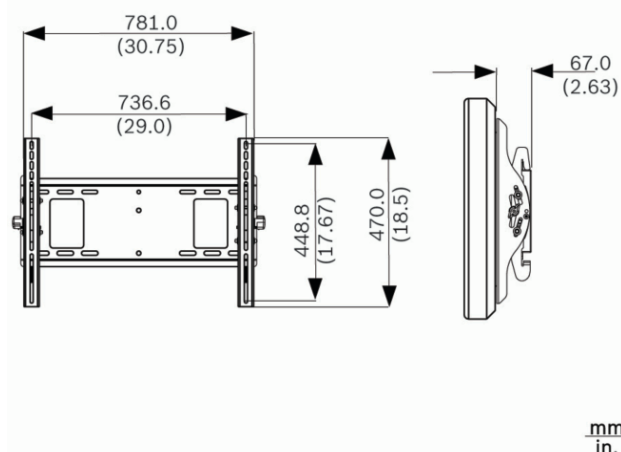
Monitor Type	Dual 8.4 in. and single 8.4 to 19 in. LCD monitors
Maximum Weight Capacity	9.5 kg (20.94 lb)
Depth Adjustable	36 to 78.5 mm (1.42 to 3.10 in.)
VESA Mount Support	75 x 75 mm or 100 x 100 mm
Tilt Range	±35°
Dimensions	See drawing above
Weight	Net weight: 1.4 kg (3.1 lbs) Gross weight: 2.0 kg (4.4 lbs)

Parts Included**UMM-LCDUB-RM Rack Mount**

1	Rack mount Bracket
2	Side Holders
2	Mounting bases for 8.4 in. and 10.4 in. monitors
16	M3 x 4, M4 x 20, M5 x 4 Phillips Screws
10	Cosmetic plates (5 sets of 2)

ST660 Universal Tilt Wall Mount

The ST660 mount includes a universal screen adapter to accommodate mounting holes spaced up to 736.6 mm (29 in.) horizontally and 448 mm (17.67 in.) vertically and up to 90.71 kg (200 lb) in weight. In addition, the universal bracket easily hooks onto the wall plate for fast installation.



ST660 Universal Tilt Wall Mount

Mechanical**Universal Tilt Wall Mount (ST660)**

Monitor Type	For 32-in. to 60-in. LCD monitors only
Maximum Weight Capacity	90.71 kg (200 lb)
Tilt Range	30° (±15°)
Mounting Surfaces	Wood stud, concrete, cinder block, and metal stud ¹
Material	Scratch-resistant fused epoxy
Color	Black
Dimensions	See drawing above
Weight	3.6 kg (8.02 lb)

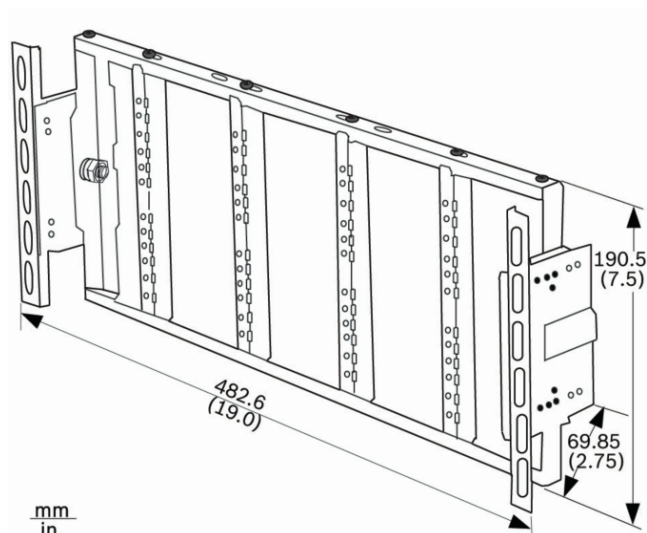
¹ Metal stud accessory required.

Parts Included**ST660 Universal Tilt Wall Mount**

- | | |
|---|---------------------------|
| 1 | Wall plate (double stud) |
| 1 | Left tilt bracket |
| 1 | Right tilt bracket |
| 4 | #14 x 2.5 in. Wood screws |
| 4 | Alligator® anchors |
| 1 | 4 mm Allen Wrench |

RMK-08 Rack Mount Bracket

The RMK-08 is a monitor rack mount that is designed for use with a 15-in., 17-in., or 19-in. VESA®-compliant UML LCD monitor in a standard 19-inch (48 cm) equipment rack, up to 9.5 kg (20.94 lb) in weight. The height varies from 7 rack units (15 in.) to 10 rack units (19 in.).



RMK-08 Rack Mount Bracket

Mechanical**Rack Mount Bracket (RMK-08)**

Monitor Type	LCD monitors only
Maximum Weight Capacity	9.5 kg (20.94 lb)
Tilt Range	±35°
Material	Steel
Color	Black
Dimensions	See drawing above
Weight	1.4 kg (3.09 lb)

Parts Included**RMK-08 Rack Mount**

- | | |
|----|--------------------------|
| 1 | Rack Mount Bracket |
| 2 | Rack Guide Bracket |
| 10 | M4 x 8 mm Phillips Screw |
| 5 | 4 x 8 mm Phillips Screw |

Ordering Information**UMM-LCDUB-RM Rack Mount Bracket for LCD Monitors**

Supports dual 8.4-in. and single 8.4- to 19-in. LCD monitors in a standard VESA rack cabinet

UMM-LCDUB-RM**UMM-LP-10B Pipe Mount**

Pipe mount with ball joint, 10-in. stem and pipe coupling, black

UMM-LP10B**UMM-LW-10B Flange/Wall Mount**

Flange/wall mount with ball joint, 12-in. stem and wall flange, black

UMM-LW10B**UMM-LW-20B Fixed Wall Mount**

Fixed wall mount for flat panel LCD monitors, black

UMM-LW-20B**UMM-LW-30B Swivel/Tilt Wall Mount**

Swivel/Tilt wall mount for flat panel LCD monitors, black

UMM-LW-30B

Ordering Information

ST660 Universal Tilt Wall Mount**ST660**

Tilt wall mount for an LCD 32 in. to 60 in.,
black

1

19RTL19 19-inch Color LCD Display Monitor (VGA) 687

4

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